The Mining Journal
RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 342.—Vol. XII.] LONDON: SATURDAY, MARCH 12, 1842. [Price 6d.

SHARES IN THE CELEBRATED CARNBREA TIN AND COPPER MINES, Cornwall.—TO BE SOLD, BY AUCTION, by Mr. W. W. SIMPSON, at the Mart, London, on Tuesday, the 29th instant, at Twelve o'clock, ONE HUNDRED SHARES in the above well-known mines, which are paying a dividend of about £20 per share, with prospects of further increase. They will be sold in lots of five or more shares, to suit the convenience of purchasers.—Persons desirous of inspecting the mines may do so on application to the agents at the mines. Particulars may be obtained at the Mart; and of Mr. W. W. Simpson, Bucklersbury. 1

IRELAND—PROFITABLE INVESTMENT.—WANTED, an ACTIVE PARTNER, who will advance £2000, undertake to reside, and superintend the business of a valuable Slate Mine, which has been explored at considerable expense; is now in a remunerative state of working, and the produce, the quality of the slate is excellent, and much approved of, and the locality peculiarly eligible, being but eight Irish miles from the city of Waterford, and two and a half from a boat harbour, communicating with the neighbouring towns of Carrick-on-Suir, Clonmel, and New Ross, and within short distance of several smaller [illegible] by water-power. By judicious management a return of 25 per cent. per annum, calculated on £4000, which the advertiser is out of pocket, could be realised from the 1st June next; if the acting partner be found intelligent, of business-like habits, and respectable character, he will be allowed half the nett profit, and 10 per cent. consideration, for his constant superintendence, out of the other half.

In order to afford qualified applicants an opportunity to ascertain the safety of the proposed undertaking, which, at the outset, like most mining speculations, was hazardous, and, for some time in its progress, doubtful, the candidate who may be chosen will be allowed to experiment, for one or two months, from the 1st May next, the working of the concern; and, by a covenant in the Deed of Partnership, to withdraw therefrom, if, at the termination of such time, it shall not have been demonstrated that, under a skilful system of management, the slate quarry is intrinsically available to the production of an annual profit of £1000.

Application by principals, or their authorised agents, to Messrs. Richard Bartlett Butler and Co., 6, Austinfriars, London, who will communicate further particulars.—March 11. 2

COLLIERIES and QUARRIES in DURHAM.—TO BE LET, for a term of years, BY PROPOSAL, all those VALUABLE SEAMS OF COAL under the Manors and Royalties of Willington, Helmington Row, Billy Row, Oaks, Mown Meadows, Thornley Pit House, Roddymoor, and Stanley allotments; together with TWO EXCELLENT QUARRIES, well adapted for colliery purposes, called Winkey's Gill and Dufold Hill, all situated within the parish of Brancepeth, and county of Durham, belonging to Charles Lyon, Esq.—Proposals to be forwarded to the office of Messrs. Mowbray and Hutchinson, solicitors, Darlington; Messrs. Stone and Symonds, solicitors, 62, Chancery-lane, London; or to Messrs. Dunkin, Sheth, and Armstrong, solicitors, Newcastle-on-Tyne.

The quality of the above coal was tested before a committee of the House of Commons in 1836, and unanimously declared to be of very superior description.—Immediate possession can be obtained.

London, March 7. 3

COAL MINES IN STAFFORDSHIRE.—TO BE LET, by PRIVATE CONTRACT, for a term of Twenty-one years, the MINES OF COAL, CANNEL, AND IRONSTONE, lying and being under the estate called the PEACOK HEY, situate in the townships of Talk-o'-th'-Hill and Chattley, in the parishes of Audley and Wolstanton, in the said county of Stafford, and now in the occupation of Mr. James Harrison. The estate comprises 25 acres 3 roods 25 perches of land, of statute measure, or thereabouts; and the mines under it are the Pencraft Mine, the Great Row, and the Little Row, all of which crop out within the estate. The Pencraft Mine is called four feet thick; the Great Row, seven feet of coal and one foot of cannel; and the Little Row, five feet of coal and cannel. The mines will be let at a rent per foot thick per acre for the coal and cannel, and a rent per ton for the ironstone, with a rent certain.

The tenant will show the estate, and afford all facilities to parties wishing to view it; and a plan may be seen, and further particulars obtained, on application to Messrs. Rouse and Son, solicitors, Knutsford, Cheshire, to whom any one wishing to treat may apply. 4

COAL MINE FOR SALE.—TO BE SOLD, situate in the preferable part of the FLINTSHIRE COAL FIELD, a very snug and compact COLLIERY, ranging over a large surface, containing twenty feet and upwards, in four delphs or seams of the best coal in the county, advantageously located both for land sale and shipment; the offices, steam-engine, machine, and all the working gear in excellent condition; there are two shafts, from which they are winding coal daily at a very low royalty. Any person, or persons who can command £6000, will find this an opportunity for investment of capital, insuring a handsome return without risk. Principals only will be treated with, by applying personally, or by letter (post paid), to W. Heath, Esq., solicitor, 2, Charlotte-row, Mansion-house, London.

Also, a SLATE QUARRY, of great value, in Carnarvonshire, now raising slates of excellent quality, to be DISPOSED OF on liberal terms.—For particulars apply as above. 5

VALUABLE MINERAL PROPERTY IN CUMBERLAND. —TO BE SOLD, or LET, the LEASE of the MANOR of BRAITHWAITE and COLEDALE, situated in the county of Cumberland, and held under the Earl of Egremont; several LEAD and COPPER MINES having been already opened, and at present in working order—one of which is now yielding good ore—but on account of the distance from the residence, and also the business of the advertiser, he is anxious to sell the lease (which was taken for twenty-one years, six of which are yet unexpired), and to any company or individual purchasing, with an intention to prosecute the search for ore, the advertiser can warrant the renewal of the lease. For further particulars, apply to Mr. John Tebay, plumber, Whitehaven.

N.B.—A pair of Blast Cylinders and Smelting Apparatus to dispose of, apply to the advertiser. 6

THE PATENT SAFETY FUSE, FOR BLASTING ROCKS IN MINES, QUARRIES, AND FOR SUBMARINE OPERATIONS.—This article affords the safest, cheapest, and most expeditious mode of effecting this very hazardous operation. From many testimonies to its usefulness with which the Manufacturers have been favoured from every part of the kingdom, they select the following letter, recently received from John Taylor, Esq., F.R.S., &c., &c.:—

"I am very glad to hear that my recommendations have been of any service to you. They have been given from a thorough conviction of the great usefulness of the Safety Fuse; and I am quite willing that you should employ my name as evidence of this."

Manufactured and sold by the Patentees, BICKFORD, SMITH, and DAVEY, Camborne, Cornwall. 7

SMOKE NUISANCE.—ECONOMY OF FUEL WITHOUT THE NUISANCE FROM SMOKE, by C. W. WILLIAMS'S AIR FURNACE. —The principle of this furnace consists in the mode by which the air is introduced to the gaseous matter evolved from coal, whereby a more perfect combustion of the constituents is effected, the process being conducted on true chemical principles, as explained by Mr. Williams, in his Treatise on the Combustion of Coal. A furnace, constructed on this principle may, by permission, be daily seen in action at the Liverpool and Harrington Water-works, Soho-street, Liverpool.

For further information, apply to Hincks and Co., agents, 3, Town-hall-buildings, Cross-street, Manchester; or to Mr. C. W. Williams, Liverpool. 8

NEWTON'S LONDON JOURNAL of ARTS and SCIENCES, No. CXXIII., for March, illustrated with three plates, will contain the following interesting specifications:—Hampson's Calico Printing—Townshend's Turnip-cutter—Newton's Machinery for making Screws—Cottam's Railway Turn-table—Ridgway's Pottery Moulds—Ridgway and Wall's Machine for making Earthenware—Rankin's Wood Pavement—Barker's Gas-meter—Walker's Hydraulic Engine—Coles's Construction of Tanks—Roberts's Case-hardening Iron—Bethell's Preserving Wood—Apsey's Boiler Furnaces. Review of all Patents granted for Artificial Fuel, by the Editor; an Article on the Ventilation of Buildings, by Dr. Ure, F.R.S.; —Transactions of the Society of Civil Engineers—Scientific Adjudication—Lists of English, Scotch, and Irish Patents, and Celestial Phenomena.

Published monthly, price 2s. 6d., by W. Newton, at the office for patents, 66, Chancery-lane, London, and Town-hall-buildings, Manchester; Sherwood and Co., Paternoster-row; Simpkin and Marshall, Stationers'-court, and sold by all booksellers. 9

THE LONDON MERCANTILE JOURNAL, published every Tuesday, at the office, No. 42, [illegible] lane, contains forty-eight columns of closely printed matter, in which is comprised the most accurately compiled Prices Current of the London, Provincial, and Foreign Markets, with correct stock of Imports and Exports, the whole forming, in one sheet, the most complete weekly digest of trade, commerce, and agriculture ever presented to the public. Its columns, free from political bias, are alone devoted to the consideration and discussion of those great mercantile subjects in which Great Britain owes its pre-eminent position [illegible] foreign and colonial trade, [illegible]. To [illegible] commercial [illegible], which have been so long [illegible] by the public press, particular attention is given. From its extensive and highly respectable circulation, this journal offers peculiar advantages to the shipping interest, bankers, and public companies, as a medium for advertising. Orders received for advertisements and subscriptions at the office, and by every newsvender in the United Kingdom. 10

WANTED to PURCHASE, a good SECOND-HAND HIGH-PRESSURE STEAM-ENGINE, about 25-horse power, eight-foot stroke in the cylinder.—Apply to Mr. David Scott, engineer, Flint; or to Mr. James Treweek, Mona Lodge, Anglesey. 11

WANTED, an experienced FOREMAN, or good WORKMAN, in COPPER MINES, with or without an assistant, to go out to a healthy part of South America, to be employed in directing works, inspecting ores, and all the operations connected with that branch of mining. The most satisfactory references will be required as to character, capacity, honesty, and sobriety; the persons desiring the engagement may apply, by letters only, post paid, to "A. B.," No. 40, King William-street, City, London, stating the age, place of abode, reference, and salary required for a year certain, and two years more at the will of the employers; the voyage out will be free and paid; and the cold will be paid at the end of the period, voyage out paid, and also home, and more than a moderate salary will be required, but on giving satisfaction a liberal remuneration will be stipulated; salary to count from leaving England until the return, but, in case of dismissal for misconduct, it will be stopped, and no return voyage allowed. 12

GREAT WHEAL CHARLOTTE MINING ASSOCIATION. —Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of the shareholders of this association will be held, at the George and Vulture Tavern, Cornhill, on Tuesday, the 29th inst., at One o'clock precisely.

Laurence Pountney-hill, March 11. 13

NORTHERN COAL MINING COMPANY.—Notice is hereby given, that a CALL of TWO POUNDS per share was this day made by the directors, and payment thereof is required to be made, on or before the 26th day of March next, at either the Newcastle-upon-Tyne Joint-Stock Bank, Newcastle-upon-Tyne; the East of England Bank, Norwich, Yarmouth, and Ipswich; or the London and Westminster Joint-Stock Bank, London.

Queen-street, Norwich, Feb. 5. 14

THE MINERS' COMPANY.—The Court of Assistants of the Governor and Company of Copper Miners in England hereby give notice, that they have this day made a CALL of TEN POUNDS per share upon all shares on which no more than £75 per share has been paid; the said call to be paid on or before the 16th day of April next, at the banking house of Messrs. Glyn, Halifax, Mills, and Co., Lombard-street, or at the office of the company.

Office of the Governor and Company of Copper Miners in England,
Old Broad-street, London, Feb. 22. 15

ROYAL POLYTECHNIC INSTITUTION, 309, Regent-street. —The directors of this Institution hereby give notice, that they intend to award MEDALS for the following INVENTIONS:—

1. For a WORKING MODEL of the most improved LOCOMOTIVE-ENGINE, by steam or other power—a Gold Medal.
2. For the second best ditto—a Silver Medal.
3. For WORKING MODEL of the most improved MARINE ENGINE—Gold Medal.
4. For the second best ditto—a Silver Medal.
5. For the best SELF-ACTING MUSICAL INSTRUMENT—a Gold Medal.
6. For the second best ditto—a Silver Medal.
7. For a MODEL illustrating the most improved PRINCIPLE of UNWATERING DEEP MINES—a Silver Medal.
8. For the best SUSTAINING GALVANIC BATTERY—a Silver Medal.
9. For a MODEL illustrating the most approved METHOD of RAISING ORES, &c., from MINES—a Silver Medal.

In the distribution of these Medals, it is not intended to exclude inventions that have been patented. The Models to remain for Exhibition in the Institution for at least the space of one year after the Medals have been awarded, should the directors think proper to retain them. The Medals will not be awarded if the Inventions and Models are not considered to be improvements on machinery now made. The Models to be forwarded to the Institution on or before the 9th of May next.

January, 1842. R. J. LONGBOTTOM, Sec. 16

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.—PREMIUMS offered for competition in 1842, and partly in following years, by the Highland and Agricultural Society of Scotland.

[Note—Intending competitors are requested particularly to observe, that there are attached to all the premiums certain specific conditions and regulations, which must be strictly attended to; those neglecting these conditions and regulations will not be allowed to compete.—The conditions and regulations referred to will be found in the Book of Premiums, published by the Society, for 1842, which may be had at the places mentioned at the end of this advertisement.]

Among the Premiums offered by the Society will be found the following—a full list can be obtained, on application, of the secretary:—

I.—ROCKS, MINES, AND MINERALS.

1. General Surveys.—Fifty Sovereigns, or a Piece of Plate of that value, will be given to any person who shall, from his own observation, execute the best geological survey of any county or district in Scotland, except the following—viz., Berwickshire, the lower district of Morayshire, Renfrewshire, the north of Ayrshire, the middle or lower part of Perthshire, Sutherlandshire, Fifeshire, Banffshire, Lanarkshire, Peeblesshire, the islands of Mull and Iona, and the stewartry of Kirkcudbright, which are already reported on.—For geological surveys deemed worthy of distinction, but which may not be found entitled to the principal premium in the year in which they are lodged, the society's Gold or Silver Medal will be awarded to the authors.

2. Reports on Coal Districts.—Thirty Sovereigns, or a Piece of Plate of that value, will be given for the best geological and mineralogical report upon any coal district in Scotland, with the exception of those situated in the south east part of the county of Fife, the north of Lanarkshire, at Muirkirk, in Ayrshire, in the parish of Dunfermline, in Fifeshire, in the county of West Lothian, in the parish of Carluke, in Lanarkshire, at Quarter, in Lanarkshire, and in the valley of the Garnock and Irvine, in Ayrshire, which have already been reported on.—The society's Gold or Silver Medal will be given for such reports on coal districts as may be found worthy of that distinction, but which may not be considered entitled to the principal premium.

3. Metals and Minerals.—The Gold Medal, or a Piece of Plate of such value as the communication may be adjudged to deserve, will be given for the most satisfactory report, describing all the useful metals or minerals which might be profitably worked, and which are not now worked, in any particular district in Scotland.—Reports to be lodged on these subjects on or before the 10th October, 1842.

II.—INVESTIGATION OF CERTAIN POINTS CONNECTED WITH THE SCIENCE OF AGRICULTURE.

The society, being desirous of encouraging inquiries on points connected with the science of agriculture, has, with a view to this important object, set apart One Hundred Sovereigns, to be awarded in such proportions as the directors may think proper, for such communications as shall be lodged on any of the following subjects, which may be approved by them:—On the Influence of Soil on Vegetation—On the Action and Uses of Lime—Atmospheric Influences upon Soil and Vegetation—Saline Constituents of Plants—Mineral Substances of Weeds—Experiments with Substances as Manures—Radical Excretions of Plants—On the Absorption of Liquid Solutions by Timber, and the effects.

III.—ON THE CROPS AND TREES WHICH THRIVE BEST ON THE GEOLOGICAL FORMATIONS OF SCOTLAND.

For an approved essay, or report, pointing out the agricultural crops, and the kinds of forest trees, which thrive best on each of the various geological formations of Scotland, and explaining the reason why certain crops and kinds of forest trees do not thrive on some of these formations—the Gold Medal. 17

IV.—VEGETABLE PRODUCTIONS OF INDIA.

The Gold Medal will be given for the best and approved report on the hardy, or supposed hardy, agricultural and other useful plants of the Himalaya, and other parts of India, where such a low temperature exists as to induce the belief that they may be beneficially introduced into the cultivation of Scotland.

V.—AGRICULTURAL MACHINERY.

Application of Steam to the Cultivation of the Soil.—A premium of Five Hundred Sovereigns, or such other sum as the directors may see proper in the circumstances, will be awarded for the first successful application of steam power to the cultivation of the soil.—Intending competitors are referred to the premium list of 1842, for a detailed announcement of this premium. It is intended to withdraw the notice after the present year.

The subjects enumerated under this head comprise the following:—Construction of Agricultural Wheel Carriages—Implement for Cutting Drains—Reclaimed Tile Work—Economical Drain Tile—Roofing Tiles—Weighing Machine for Cattle and Sheep—Invention or Improvement of Implements of Husbandry.

The premiums awarded by the society are payable after the 10th February, for the preceding year. Orders, payable at the Royal Bank of Scotland, are issued, of that date, by the directors, in name of the parties in whose favour the premiums have been awarded; the orders will be delivered at the Society's Hall, upon the receipts of the parties to whom the premiums have been adjudged being presented; or the parties may transmit, through any bank, stamp receipts, or [illegible], addressed to the Treasurer or Secretary, if done without expense to the society. The receipt, or bill, must specify distinctly the premium in discharge of which it is sent.—Parties desiring personal or plate or medals, will, by themselves, or some person having their authority, apply at the Society's Hall for an order on the society's jeweller and medallist.

By order of the directors,
CHARLES GORDON, Secretary.

Highland and Agricultural Society's Hall, Edinburgh, Feb. 24.

*** The List of Premiums, as published in a separate form, containing the conditions and general rules of competition, may be had gratis, by members of the society, on application at the Society's Hall, or at the Society's Museum, George the Fourth-bridge, Edinburgh. Intending competitors and others will obtain copies, price sixpence, on application at the society's publishers, Messrs. Blackwood, 45, George-street, Edinburgh, and 22, Pall-Mall, London.

ROYAL CORNWALL POLYTECHNIC SOCIETY. PREMIUMS FOR 1842, NOT CONFINED TO THE COUNTY.

A premium of Fifty Pounds, by the Rev. Canon Rogers, to the superintending engineer, who shall have been employed to erect a machine for raising miners from underground, in any Cornish mine.

A Gold Medal, by the society, for the most approved model, with drawings and explanations, of a merchant vessel, of from 200 to 300 tons—combining stowage and sailing qualities.

A premium of Five Guineas, by W. Broad, Esq., for the model of a merchant ship, [illegible].

A premium of Ten Pounds, by W. T. Praed, Esq., M.P., for the best chemical or mechanical method of ventilating mines, that can be applied to the Cornish mines with advantage.

A premium of Ten Pounds, by J. H. Tremayne, Esq., for the best available method, or improvement, on the plans already suggested, for facilitating the ascent and descent of miners.

A premium of Ten Pounds, by T. J. A. Robartes, Esq., for the plan, or model, which obtains the above premium, provided it be successfully [illegible] of expense as shall be approved of by the judges.

A premium of Five Guineas, by John Taylor, Esq., F.R.S., for the most complete and accurate accounts of the quantity of water supplied to the engines, the number of bushels of coal consumed, and the duty performed by an engine, for a period of not less than six months.

A premium of Ten Pounds, by Major Jenkins, of Assam, in India, for the best model, or the several descriptions of fishing-boats used on the coasts of Cornwall and in the Scilly Islands.

A premium of Ten Pounds, by Henry English, Esq., for the best paper, containing an account of any methods or plans, employed in any other mining districts, advantageously applicable to the Cornish mines.

A premium of Five Pounds, by Lieut.-Colonel Sykes and Sir C. Lemon, Bart., for the best report on the agricultural produce of any union in the county of Cornwall, in one of the years 1840, or 1841, or 1842.

A premium of Ten Pounds, by Sir Charles Lemon, for the best series of experiments on [illegible] the quantity of air which enters the fire-places of one or more engines in a given time.

A premium of Five Pounds, by the society, for the best practical method of obviating the corroding effects, produced by solution of copper and other substances, in the feed and injection water on the boilers, and other parts, of the steam-engines used in Cornwall.

The First Silver Medal will be given by the society for the best account of the space passed through by the piston of any pumping-engine in Cornwall (not less than 50-inch cylinder), for a period of six months.

A premium of Three Guineas, by Charles Fox, Esq., for the best analysis of the air taken at the termination of a "core" of two men, from the extremity of one mine level in granite, and of another in killas.

Four premiums, by Charles Fox, Esq., the first of Seven Guineas, for the best series of instructions for a general and particular examination of every steam-boat engineer; the second premium of Five Guineas for the second best; the third, of Three Guineas, for the third best; the fourth, of Two Guineas, for the fourth best.

A premium of Twenty Pounds, by Major Jenkins and Messrs. G. C. and R. W. Fox and Co., for the best method of catching pilchards in deep water, and curing them in a state fit for curing—such method to be in actual operation.

A premium of Five Pounds, by William Reynolds, Esq., for the best statistical report of the working of the New Poor Laws in any "new" Union house.

A premium of Five Pounds, by the society, for the best shaded drawing, from a plaster cast, after the antique.

A premium of Five Pounds, by the society, for the best water-colour drawing of English animals or plants from Nature.

A premium of Two Guineas, by Miss Fox and the society, for the best-filled sketch book from Nature.—Any one under eighteen may compete.

A premium of Five Pounds for the best drawings illustrative of the five orders of architecture.

A premium of Two Pounds for the best map of Asia, showing the tracks of the great conquerors.

A premium of One Pound for the best perspective outlines, with illustrations.

Charles Fox, Esq., offers to the society, as long as he continues a member of it, the sum of Four Pounds annually, to be distributed in the respective sums of Two Pounds, One Pound, Twelve Shillings, and Eight Shillings, in four several prizes, for the neatest and most correct maps of some one state, province, or European colony, comprising not less than 144 square miles, or a portion of not less than 100 square degrees of some uncivilised region.

Much inconvenience having arisen from the late period at which articles have been sent in for competition, it is particularly requested that, on all future occasions, they shall be lodged at the Polytechnic Hall three or four days before the day of exhibition, whereby the merits of every article will be more particularly examined.

Any other information respecting the Society may be had on reference to the members of the committee, or the agents in the county, from whom the reports of the society may be obtained. ROBERT HUNT, Secretary, Falmouth.

Agents.—Falmouth, Mrs. Trathan; Truro, Mrs. Heard; Penzance, Mr. Rodda; Redruth, Mr. R. Rise, jun.; Camborne, Mr. L. Newton; St. Austell, Mr. J. Drew; Liskeard, Mr. R. Esterbrook; Lostwithiel, Mr. R. White; Bodmin, Mr. Liddell; Helstone, Mr. H. Carlyon. London—Simpkin and Marshall, Stationers' Hall-court; and Weale, 59, High Holborn. 18

ANDREW SMITH'S PATENT WIRE ROPES, for standing rigging, lightning conductors, stropping of blocks, mining, railway, and general purposes; about half the size and weight of hempen ropes, and 25 per cent. cheaper. Testimonials to that effect, with specimens, may be seen, and every information obtained, at the office, 57, New Broad-street, city; manufactory, Mill-wall, Poplar; and also of the following agents:—

Matthias Dunn	Newcastle-on-Tyne.
Joseph Bothway	Plymouth.
John Thompson and Co.	Wigan.
J. T. Tregellas	Truro.
Thomas Mooney and Son	Dublin.
Perrin and Nolan	Wicklow.
Coakin and Young	Belfast.
James Kibble and Co.	Glasgow.
James Gunn	Leith.
J. M. Beatie, Clements's-lane, High-street	Dundee.

ANDREW SMITH'S PATENT WIRE ROPE.

This rope has been in use for standing rigging in her Majesty's Navy, and in a great number of merchant vessels, for upwards of six years, and is giving the highest satisfaction; the rope is also employed in various mines and railways in different parts of the kingdom. 19

TO THE MINING INTEREST OF CORNWALL.—SAVING OF FIFTY PER CENT.—J. T. TREGELLAS, Truro, Agent for ANDREW SMITH'S PATENT WIRE ROPES for the county of Cornwall, feels it a particularly pleasing duty, after nearly two years' highly satisfactory trial in the Cornish mines, to report to all concerned, that the result of the said trial has confirmed beyond a doubt his first impression, that a saving of full one-half of the expense of cordage would be effected, and is now effecting, by the use of these ropes, composed of English iron, over those made of Russian hemp.—J. T. Tregellas selects the following testimonials from the many he has received:—

Wheal Mary, Lelant, Oct. 15, 1841.

Sir,—I have much pleasure in informing you that the 2-inch wire rope which you sent me the 9th of July last has fully answered your recommendation, and I have used it to lift five tons and upwards with perfect confidence.

I am, Sir, yours, most respectfully,
Mr. J. T. Tregellas, Truro. (Signed) S. E. MICHELL.

North Roskear Mines, 24th Feb., 1842.

Sir,—The 1½-inch wire rope you sent to these mines has been at work at our 22-inch cylinder steam whim about five months, drawing from 80 to 100 fathoms, and is not at all the worse for wear—I have examined it daily, and nothing can work better. I shall be happy to show it to any person who may apply, as I consider it the best invention of the kind that has ever been adopted, and from the duty it does, and from the duty it saves, must soon be generally used, and hemp and chain thrown out. The saving of coal is full one-third. From the strains I have seen it submitted to, I pronounce this rope of 1½-inch circumference, to be four times as strong as any ⅝-16 chain that can be produced. Be particular in having good pulleys and good rings, and I recommend the attaching of at least thirty fathoms of chain to the end of the rope for the shaft. I am, Sir, &c.,
(Signed) JOHN WEST, Engineer.

To Mr. J. T. Tregellas, Truro.

P.S.—We are about to put up two more of your wire ropes. 20

Price 28s. per Cwt.; Flat and Small Round 30s. per Cwt.

A 1½-inch wire rope is a full size whim rope, weighs about 2 lbs. per fathom, and will lift eight tons.

A 1¼-inch, which weighs 2 lbs. per fathom, will lift 12½ tons.

A flat rope 4 by ½ inch, which weighs 7 lbs. 8 oz. per fathom, will lift 77½ tons.

A flat rope 3½ by ⅜ inch, which weighs 4 lbs. 12 oz. per fathom, will lift 7½ tons.

The wire rope now getting into general use as a tackle rope is one inch round, which is equal to a strain of one ton.

*** These wire ropes are now at work at the following mines:—Tresavean, Tingtang, Consols, Cragbrawse, Wheal Mary (Lelant), Wheal Darlington, Wheal Mines, East Wheal Crofty, North Roskear, Par Consols, North Roskear, Wheal Seton, Consols, &c., &c.—They are now in use at the Royal Dockyards, Portsmouth, Redruth, and Tuckingmill Foundries.—Also for plough traces, &c., at Fenton, Penhallow, and many other places.

Truro, March 1.

NEW PATENTS FOR FEBRUARY.

Charles Wye Williams, gentleman, Liverpool, for certain improvements in the making and moulding of bricks, artificial fuel, and other substances.

Benjamin Biram, colliery viewer, Wentworth, Yorkshire, for certain improvements in the construction and application of rotary engines.

Isham Baggs, chemist, King's-cross, Middlesex, for improvements in obtaining motive power, by means of [illegible] a peculiar application of heated air.

Charles Thomas Holcombe, iron merchant, Bankside, Southwark, for certain improvements in the manufacture of fuel, and in obtaining products in such manufacture.

John [illegible], engineer, East-street, Manchester-square, for improvements in steam-engines and boilers.

Thomas Russell Crampton, engineer, Lipton-grove, and John Coope Haddan, civil engineer, Moorgate-street, London, for improvements in steam-engines and railway carriages.

IMPROVEMENTS IN STEAM-ENGINE BOILER AND FURNACE FLUES.

[Specification of the patent granted to Joseph Apsey, of Cornwall-road, Lambeth, engineer, for improvements in the construction of flues for steam-engine boilers and other furnaces.]

These improvements consist in making the flues surround nearly the whole outer surface of the boiler, the outlet into the chimney being at a point below the water-line of the boiler; by which means, although the flues are above that line, the rush of the flame, heated gases, &c., will not be higher than the outlet into the chimney, all above that outlet being a stagnant heated atmosphere. Thus, any injury that the metal of the boiler, above the water-line, would sustain, if the rush of flame to the chimney was above that line, is prevented. The patentee claims the mode of constructing flues of steam-engine and other boiler furnaces, whereby the same are carried above the water-line of the boilers, and the outlet into the chimney is found below the water-line of the boilers, as above described.

IMPROVED PROCESS OF CASE-HARDENING IRON.

[Specification of the patent granted to Robert Roberts, of the township of Bradford, near Manchester, in the county of Lancaster, blacksmith, for a new method or process of case-hardening iron.]

This invention consists of a new mode of combining or uniting wrought-iron with cast-iron, by which wrought-iron, of any manufactured form or dimensions, may be readily case-hardened. In order to perform the operation of case-hardening iron, according to this process, an ordinary furnace is prepared, in which is placed a vessel or compartment, to contain cast or molten iron, heated and melted by the furnace, in such a state as it would be used for running or casting into moulds. In the same furnace is placed, in a separately heated chamber or compartment, the article of wrought iron intended to be hardened, say (for the sake of illustration) the tyre of a wheel. The furnace may be of any form or dimensions, suitable to the shape and size of the wrought-iron to be hardened. The furnace being closed, and the cast-iron in a state of fusion, the wrought-iron tyre must, when at a complete red heat all over, be lowered into the fluid cast-iron in the vessel, chamber, or compartment below, and gently rolled or turned round in it, when the cast-iron will completely case over the wrought-iron tyre with any required thickness of cast metal, from one sixteenth to half an inch, more or less, which, upon being removed from the furnace, and immediately immersed in cold water, will be entirely case-hardened or steeled.

It will be necessary to observe, that the iron, as it comes out of the furnace, should be so immersed in water, that its entire surface be covered by the water at the same time, in order to prevent any irregularities in the contraction of the metal. Great elasticity and strength may also be given to bars or strips of wrought-iron, thus case-hardened; and carriage and other springs may be made in this manner. The patentee claims the method or process of case-hardening iron, by coating, covering, or combining wrought-iron with cast iron, as herein set forth.

IMPROVEMENTS IN STEAM-ENGINES.

[Abstract of specification granted to John Thomas Carr, of the town and county of Newcastle-upon-Tyne, for improvements in steam-engines.]

The steam-engine, constructed according to these improvements, has its piston-rod working through a stuffing box, having the character of a universal joint. This stuffing-box is a spherical box, working in a ball upon the top of a box which slides to and fro by dovetailed joints in the steam cylinder cover. The piston rod is jointed to the piston and attached directly to the crank of the driving shaft; the universal jointed stuffing-box and the sliding-box, conforming to its movement and vibrating backward and forward to the extent of its deviation from the perpendicular. The air-pump is placed immediately beneath the cylinder, and worked by its bucket rod, being attached to the under side of the steam piston, passing through a stuffing-box in the base of the steam cylinder. The valves are worked by the sliding-box before mentioned in the following manner:—A stud or pin projects from the front side of the box and works in the lower limb of a T shaped lever, centred in the middle of the horizontal portion. At each extremity of the upper arms is fixed a pin, from one of which a connecting rod passes down to the valve rod. As the box slides backward and forward upon the cylinder, a rocking or oscillating motion is given to the lever, and the raising or depressing of the valve-rod effected. In order to reverse the motion of the engine, the valve-rod is merely shifted from the one arm to the other, which brings about the desired end. Another arrangement for reversing the motion of steam-engines, without altering the valves or gearing, consists in placing an intermediate slide or port-piece between the D valve and the cylinder ports, by shifting of which the induction and eduction passages become reversed.

For working the cold and hot water pumps, the following arrangement is adopted. On the opposite end of the main shaft to that at which the crank is situated, the first motion wheel is keyed, and on the outer face of this wheel a pin is placed eccentrically to its axis; from this a connecting rod passes down to a triangular-shaped block of metal, working between two upright guides; to this block, the piston of the cold water pump, and the plunger of the hot water pump, are attached—the object of the weight being to counterbalance the piston, air pump, bucket, &c. In lieu of the ordinary governor, the patentee employs the following apparatus:—A pulley is driven by means of a belt on the driving shaft, and upon the periphery of this pulley rests a smaller pulley, attached to a bell-crank lever in connection with the throttle valve of the engine. At the regulated speed of working the two pulleys merely revolve in contact; but should that speed be exceeded, the small pulley is thrown forward by the increased velocity of the larger one, and the throttle-valve being acted upon, partially shuts off the steam.

The claim is, 1. To the method and arrangement for working the valves of steam-engines, by taking the motion directly from the moveable stuffing-box of the piston rod, and conveying it to the valve-rod, and for the arrangement for reversing the motion of the engine. 2. To the method of reversing the motion of steam-engines, without altering the valves or gear. 3. To the method and arrangement for working the hot and cold water pumps, and for counterbalancing the weight of piston, air-pump bucket, &c. 4. To the method and arrangement for regulating the motion of steam or other fluid engines by means of a frictional governor.

ACCIDENTS ON RAILWAYS.—From a Parliamentary return, we learn that, during the year 1841, the number of accidents on various railways, which arose from causes beyond the control of passengers, or, in other words, from carelessness and want of proper precautions on the part of the railway companies, or their servants, amounted to twenty-nine, by which twenty-four persons were killed, and seventy-two injured. During the same year there were thirty-six accidents attended with personal injury to individuals, owing to their own negligence or misconduct, by which seventeen persons were killed, and twenty injured; sixty accidents occurred which were attended with personal injury to servants of the company, under circumstances not involving danger to the public; by these accidents twenty-eight individuals were killed, and twenty-six injured. Thus there were altogether sixty-nine human beings whose lives were sacrificed by accidents on railways during the year 1841.

ARTESIAN WELL AT GRENELLE.—At the sitting of the Paris Academy of Sciences, on the 14th instant, a communication was read from M. Combes, on the contractions of the metallic tube in the bore of the well of Grenelle, in which he suggested that the phenomenon might be accounted for in the following manner—that, by the stoppage of part of the tube by earthy matter, or sediment, both above and below, a kind of vacuum had been produced, and the water, which still remained outside the tube, between the metal and the earth, had exercised so great a pressure, that the metal necessarily gave way, and assumed the forms it had since presented when extracted.

THE MASTODON.—Mr. Hall, of the Marble Works, Derby, has in his possession an interesting relic of the antediluvian world, a large fossil tooth, supposed to be of the mastodon, which has been recently found in the alluvium in the neighbourhood; the enamel parts of the tooth, which are in an excellent state of preservation, are perfectly uninjured, but the other parts are not so much indurated; the whole is beautifully stratified, and exhibits various degrees of hardness.

PETRIFIED HUMAN SKULL.—A paper was read at the Academy of Sciences, Paris, on a petrified human skull, coming from the cabinet of the late M. Tondiez, but without any indication of locality attached to it. It was found to have lost all its bony particles, which had been replaced by hydrated oxides of iron and manganese. It was conjectured that the skull had fallen into some quarry in which there was a deposit of lignite, or wood coal, and had there undergone the change in question.

LAW INTELLIGENCE.

IMPORTANT MINING CASE.

OXFORD CIRCUIT—WORCESTER—MARCH 8.

MARQUIS OF ANGLESEY v. LORD HATHERTON AND ANOTHER.—This was an action of trover for the conversion of certain quantities of coal, ironstone, and limestone, which the plaintiff alleged to be his property. The defendant justified the act of conversion by pleading a custom for the owners of copyhold tenements in the manor of Cannock, in the county of Stafford, to take, from time immemorial, the coal, ironstone, and lime-stone found within their own copyholds; and the affirmative of the issue raised on the plea being upon the defendant, his case was first laid before the jury.

It appeared that about six or eight years ago Lord Hatherton opened a mine on an estate called Rommer hill, which is held by copy of court roll of the Marquis of Anglesey, who is Lord of the Manor of Cannock. Upon being made acquainted with the fact of the establishment of this colliery, the Marquis of Anglesey addressed a remonstrance to Lord Hatherton, stating that he had no right to work the mine without the plaintiff's consent. Lord Hatherton denied that any such consent on the part of the Lord of the Manor was necessary, and arrangements were accordingly made to try the right in dispute by bringing the present action. To prove an usage by the copyholders for digging for coal and ironstone upon their copyhold lands, evidence was given to show that about sixty years ago there had been workings in several copyhold closes which were parcel of the manor, and that the coal had been openly sold by the copyhold tenants for their own profit, without any license from, or interference on the part of, the lord of the manor. It was shown also that coal and ironstone were frequently intermixed, and that it would very often not be possible to work one without the other; and further, that there were traces in one of the closes which indicated that iron had been smelted there. To corroborate this evidence the court rolls of the Manor of Cannock were put in, from which it appeared that in 1739 a surrender was made by one Barton and his wife, who were seized in fee of a copyhold held of the lord of the manor, to another tenant for years, in which Barton reserved to himself the liberty to dig for coals, and to apply the coals raised to his own use. One or two other instances of a similar reservation were also proved. No evidence, however, was given of an usage by the copyholders to take limestone. To meet the case thus presented on the part of the defendant, the plaintiff put in a grant from the Crown of the Manor of Cannock to the ancestor of Lord Anglesey, dated 29th Elizabeth, reciting several leases previously made by the Crown, in which the right to take minerals was made the subject of demise; and an agreement in 1665, made between William Lord Paget, then Lord of the Manor of Cannock, and several copyholders of Cannock, Longdon, and Heywood, through one of whom Lord Hatherton claimed the Rumer hill estate. This agreement, which was followed up and confirmed by a decree of the Court of Chancery, provided, in consideration of 1500l. paid to Lord Paget, that as disputes had arisen between the lord and the tenants of the manor, the customs of the manor should be afterwards taken to be such as they were set out in the deed, and among them was a custom for the copyholders to cut timber on their copyhold lands; and also to dig for clay, peat, sand, &c., on the lord's waste; but no mention was made in the agreement of any custom for the copyholders to take the minerals found on their copyhold tenements. The agreement, however, contained a proviso, that as "some matter or point of custom not therein before mentioned or expressed might hereafter come in question," such matters should be referred to an indifferent jury of fourteen or sixteen copyholders; and it was contended by the defendant's counsel that the language of this proviso showed that the agreement was not intended to embrace all the existing customs of the manor, but only such as had been lately in dispute.

Mr. Justice CRESSWELL, in summing up the evidence, told the jury that if they were satisfied with the evidence of usage given by the defendant, and considered that it was not contradicted or explained away by the plaintiff's case, they might then fairly infer that the usage shown to have prevailed in modern times had existed at an earlier period. Most of the regulations contained in the agreement of 1665 related to incidents of tenure, but it was a matter for their consideration whether it was likely that the copyholders, when they were paying money to the lord for the admission, were likely to forego any of their rights. The custom to cut timber was expressly mentioned, and when they were describing this sort of right, it was natural to expect that they would have specified all rights of that nature. It had been shown that the right to dig for coal and ironstone was a valuable one, and it was strange that when a custom to take turf, peat, clay, and so on, upon the lord's wastes was stated in the deed, there should be no record of a custom for the copyholders to take coal on their own land. Still it was possible that all parties might have been agreed at the time upon the right of the copyholders to dig for coal, and they would not fail to remember that the exercise of the right was a clear and tangible thing, while the construction of this instrument was open to some doubt.

The jury retired to consider their verdict, and, after half an hour's deliberation, gave it for the plaintiff.

THE NORTHERN RAILWAYS' DISPUTE.

COURT OF CHANCERY—MARCH 8-9.

THE CLARENCE RAILWAY v. THE GREAT NORTH OF ENGLAND AND HARTLEPOOL RAILWAYS.—The arguments on this appeal from the decision of the Vice-Chancellor (see Journal of 19th ult.) were commenced on Tuesday, and concluded on Wednesday; in the course of the case, the Lord Chancellor having observed that he agreed with the Vice-Chancellor in his construction of the Acts of Parliament, but had doubts on the subject of the mischief arising from the agreements with Mr. Williamson, said, at the conclusion, that he should take time to consider his judgment.—[It is expected the case will be disposed of this day, Saturday.]

BAHIA STEAM NAVIGATION COMPANY.

VICE-CHANCELLORS' COURT—MARCH 10-11.

BENSON v. HEATHORNE.—The court was occupied the whole of the day in hearing the commencement of the arguments in this case; the points in dispute relate to the purchase of a vessel by the Bahia Steam Navigation Company.—The arguments were resumed, and concluded yesterday, when his HONOUR directed, as he had intimated he should do, that inquiries should be made in the Master's office, relating to the question in whom the vessels, the City of Kingston, the Sir Lionel Smith, the Pearl, and the Falcon, were vested. With regard to the ship Newmarket, his Honour said, that, as it appeared Mr. Heathorne was the possessor of the same, and for which he paid 1340l., and that he sold the same to this company for 1500l.; that he received 15l. as a commission on the sale; that he was allowed the sum of two guineas "earnest money" usually paid to the broker; and, moreover, that he had charged, and been allowed, the costs of the bill of sale, it was utterly impossible, in such a state of circumstances, not to see that Mr. Heathorne had made the purchase for 1340l. as agent for and on behalf of the company, and he should declare accordingly. His Honour, however, thought it but fair to Mr. Heathorne to say, that, in all probability, the charges of commission would have been proper and reasonable, if charged on behalf of a stranger; but, considering that he was one of the directors, and, as such, entitled to a certain amount of remuneration, he ought not to be allowed to make any further profit of the performance of his duties. If a "ship's husband" were necessary, it was obvious he would be the servant of the directors and require their superintendence, and which superintendence they were paid to give. Here one of these directors became the "ship's husband," and it had been argued that the court could allow him his commission. Such a course was utterly incompatible with the principles of a court of equity, and if allowed would be the greatest possible encouragement to fraud. Mr. Heathorne must, therefore, pay all the costs of the suit occasioned by the charge or allowance of such sums, and full inquiries must be made relating to those charges in the Master's office.

The case is to stand in the minutes to be spoken of on Thursday next.

IMPORTANT TO SHAREHOLDERS.—THE AGRICULTURAL BANK.—A verdict has been given at the Carrickfergus Assizes against Mr. Greene, of Belfast, and Mr. Adams, of Portglenone, as shareholders of the Agricultural Bank; the defence set up was, that they had not signed the deed of partnership. This verdict establishes as fact, that the record at the Stamp-office is sufficient evidence against subscribers.

WOOD PAVING.—A lecture was delivered, on Wednesday week, at the Royal Victoria Gallery, Manchester, by Mr. A. B. Blackie, on the subject of paving streets and highways with blocks of wood, and the advantages over that of stone. The lecturer, in tracing the introduction of wood paving into this country, gave the merit of the idea to Mr. John Finlayson, who, in 1825, published an essay on the subject in the London Journal of Science, in which he endeavoured to prove (after having made experiments) that the durability of wood was much greater than granite; but the merit of carrying into effect this new system of paving, Mr. Blackie awards exclusively to Mr. David Stead, of London, he having secured a patent in May, 1838, embracing pavements of wood of every form and shape, neglecting, however, to enrol his specification within the legal time, which informality was taken advantage of, and was the means of bringing many competitors into the field. Of all the plans, however, that have been introduced, the lecturer considers that of Mr. Stead as decidedly the best, being formed upon strictly mechanical principles, while "the others were evidently mere twistings, to evade his patent."

CHEMISTRY.—A series of popular lectures on chemistry are in the course of delivery by Dr. Reid, at Exeter Hall, London; the first lecture was given on Wednesday last, which was of an elementary character.

ON THE NATURE AND PROPERTIES OF CARBON.

Mr. [illegible] has just concluded a series of interesting and valuable lectures on Chemistry, at the theatre of the Royal School of Medicine, Birmingham; the principal points embraced in which we shall occasionally transfer to our columns, as opportunity offers, without regard to the order of the lectures in which they were presented, and may have been delivered:—The fourth was chiefly occupied with a consideration of the nature and properties of carbon—an elementary body (said the lecturer) which formed, in fact, the basis of animal and vegetable substances, and entered largely into the composition of coal and other bituminous matters. Carbon was also found abundantly in many mineral rocks; limestone, chalk, and marble contained it in large quantities, but in these the carbon united with oxygen. Although very universally distributed throughout Nature, carbon was seldom found in a pure uncombined state. In its purest form carbon constituted the diamond. If, for instance, they took any kind of wood, and exposed it to a red heat in a close vessel, the volatile parts would escape, and carbon or charcoal would remain behind; this, deprived of its earthy matter, formed the substance of which the diamond was composed, the diamond being nothing more or less than carbon in a crystalline form. Chemical investigation and experiment had placed the identity of charcoal with the diamond beyond dispute. Charcoal possessed some very extraordinary properties; amongst these was the property of resisting putrefaction; it was not easily acted upon by other elementary bodies, and, therefore, it retained its pure uncombined state, under ordinary circumstances, for a great length of time. The ancients appeared to be well acquainted with this peculiarity of carbon; and it was customary with the Romans, before driving piles into the earth for the construction of bridges and similar works, to char the end of the wood by burning, and it was found, after the lapse of a thousand years, that the piles so prepared underwent very little change. Charcoal also possessed powerful antiseptic properties, meat being preserved from putrefaction by washing it with water impregnated with powdered charcoal, and water itself of the foulest kind being readily purified by passing it through alternate layers of sand and charcoal. This preservative property was doubtless communicated to charcoal from its affinity for gaseous bodies, and these were given out freely by animal and vegetable substances in a state of decomposition, it having been ascertained that newly made charcoal would absorb ninety times its own volume of some of the gases. It was difficult to account for the circumstance of charcoal absorbing an amount of gas so much greater than its own bulk; but all they could say was that such was the fact. The lecturer here proceeded to notice some of the chemical combinations of charcoal and oxygen. Amongst these was oxalic acid, which possessed highly poisonous properties, and could be made from many substances containing carbon and oxygen. It was generally made from sugar, and from its crystalline form was sometimes mistaken for epsom salts. It might, however, be easily detected by its peculiar acid taste. In case of its being taken into the stomach by accident or otherwise, its poisonous property might be effectually counteracted by swallowing chalk diffused in water, or by taking magnesia. In the absence of these remedies the scrapings of whitewash, from the wall or ceiling of a room, mixed with water, would be found to act as an effectual antidote. The great abundance in which carbon was found in coal led the lecturer to glance at the theory of the formation of that valuable mineral, and to recapitulate some of the leading facts in favour of its vegetable origin. By heating coal in a retort they obtained precisely the same elements as were produced by decomposed wood or any other vegetable substance, but in different proportions.—The lecturer afterwards noticed the valuable invention of Sir Humphrey Davy for preventing explosions in mines, and explained the principle of the safety-lamp, concluding with some interesting observations on the first introduction of coal into London, in 1275, when a medical council was held to report on its influence on health, which resulted in the issuing of a proclamation by Edward I., prohibiting its use within the bounds of the city.

MINERAL RESOURCES OF THE INDIAN PENINSULA.

At a late meeting of the Asiatic Society, a paper was read by Lieutenant Newbold, "On the Copper Districts of the Southern Mahratta Country and Nellore," which was understood to be the first of a series of papers preparing by that gentleman on the mineral resources of the Peninsula, from which he has brought an interesting collection of ores and other minerals, selected during a residence in the country, to which he is shortly about to return. The origin of the extensive, but now almost neglected, copper mines of the peninsula, appears to be lost in vague traditions; they are said to have been worked under the Vijaya-Nagar Dynasty, within whose empire they were situate, and by the Mogul conquerors, who supplanted it; but we have no further evidence of the processes followed, or of the produce obtained than can be gathered from the magnitude of the excavations, and the immense mounds of slag and scoria, now covered with vegetation, which point out the situation of the smelting-furnaces. We may infer that, however rude they might have been, the native processes were effectual in separating the metal from its ore, as few traces of copper remain. About forty-seven years ago the copper mines of Nellore were brought to the notice of the British Government by Dr. Heyne; but no result appears to have followed. A speculation entered into about eight years ago failed for want of capital, and some mismanagement. Somewhat about two years ago they were again taken in hand by J. Ouchterlony, Esq., who has established a skilful Cornish miner on the spot. The country in which these mines are situate is an undulating plain, extending from the foot of the Ghauts to the Bay of Bengal, and studded with a few detached, round-backed hills of gneiss, mica, and hornblende schist, rarely a height of more than 250 feet above the adjacent country. Much of it is barren and neglected; and large tracts are almost without a blade of grass. Hardy mimosas are the only vegetable objects in many extensive tracts, and everywhere the vegetation is stunted. The rocks comprise mica, gneiss, and hornblende schists, highly garnetiferous. Granite is rarely visible, except in veins traversing those rocks, but basaltic dykes are very numerous. Much of the paper was taken up with details of particular mines, which will not admit of abridgment. Analysis of some of the ores have been made in England by Dr. Thompson, and in India by the lamented Prinsep. The latter gentleman found the ore submitted to him to be composed of sulphuret and carbonate, and to contain 69 per cent. of pure metal. The green carbonate associated with quartz gave above 30 per cent.; and other specimens contained quantities varying from 40 to 60 per cent. It would appear that there are great facilities for the successful working of many of these mines. The population of the country is very industrious. The natives of the district about Gurumany, or Garipenta, which may be called the capital of the mining district, are of the Uper caste, whose business is well or tank digging. The cocoa-nut trees, near the coast, furnish abundance of coir for ropes; and charcoal is sold at the small cost of three maunds for one anna (if the Madras maund is meant, this will be about forty pounds for a penny). Ramapatam, on the coast, less than forty miles distant, offers an eligible port for shipping the produce; and it has been suggested, that the river which runs by Gurumany penta, might be made navigable, though this is doubted by Lieutenant Newbold. On the whole, it may be considered that these districts afford a fair prospect of giving employment to a large proportion of the population of the country, and of contributing to the resources of Great Britain.

At the conclusion of the paper, it was remarked by Colonel Sykes, that India afforded a rich, unexplored field for such researches as had been so ably cultivated by Captain Newbold. It was known that gold existed in the streams of the Neilgherries, and in the Dheyra doon; but he was not aware of any steps having been taken to trace up the auriferous streams to their sources. He observed, also, as an instance of how little had been formerly known of our resources in India, that fifty-seven locations were now ascertained to produce coal, where, but a few years ago, the existence of that mineral was wholly unknown.

EARTHQUAKE IN CORNWALL.—At a late meeting of the Royal Cornwall Polytechnic Society, Mr. Robert Hunt (the secretary) gave the following particulars of the results of his inquiries into the extent of the disturbance of the earth which was experienced in this locality on the morning of February 17th. It does not appear that the shock was felt on the northern side of Carn Marth or Carn Brea. At Wheal Virgin, one of the Consolidated Mines, on the junction of the killas with the granite, and at Poldory, a part of the United Mines, similarly situated, the shock was sensibly felt 160 fathoms from the surface, but not at all to the eastward of these mines. On the south side of Carn Marth a very sensible tremor is described, and the men at all depths in Tresavean felt the shock. In the southern parts of Camborne it was also felt, and at South Wheal Basset the kibble-filler left his work and came to the surface. In Stithians and Constantine the effects appear to have been greater than in any other parts, particularly the latter parish, from which that may be regarded as the centre of the disturbing force. Along the lines extending from about half a mile east of Carn Marth and the same distance west of Carn Brea, towards the south the noise was heard, and in many places a tremor felt; under these lines Penryn, Falmouth, and Helston, are conspicuous for the very decided manner in which they experienced the shock. At Wheal Vor, at the 130 fathom level, and below the 200 fathom, the shock was most distinctly felt by the men. We still hear of it towards the Lizard, but with a very modified action. At Porthleven the shock was scarcely felt, and but very slightly at Cadgwith and Coverack. It is curious to observe that the great line of action is confined to the granitic range running nearly north-east and south-west, and that although the influence of the shock extended into the killas and serpentine districts, it was gradually weakened, and soon lost entirely.

GEOLOGY.—A NEW SYSTEM OF PHILOSOPHY.—No. IX.

BY HENRY GRAHAM MONTAGUE, ESQ.

PHENOMENA OF THE DESERTS.

The Book of Nature is opened—the sun of truth, dispersing the clouds of superstition and folly, bursts forth in its meridian blaze, dazzling the eyes of the unlearned, and confounding the wisdom of the wise. Who would seek shelter from its glorious beams beneath the dark and cumbrous mysticisms of the past? Is not knowledge power? The buildings of ages totter to their fall—opinions, theories, and systems, crumble into dust—and the proudest monuments of old yield to the talisman of knowledge as mind awakens to its strength.

Hearken unto me ye children of the earth—come hither! drink at the fountain of Nature, and be wise. Wisdom is a pleasant draught to the thirsting soul, like the effulgent glory of the sun, giving light and life, where light and life were previously unknown. Inhabiting the hallowed temple of the soul, her all-searching eye wanders o'er the earth—through the ocean depths—through the immensity of space above and around us—gathering food for meditation and for wonder, gathering material upon which to erect the edifice of greatness and of immortality. Who will listen to the voice of wisdom? striking upon the senses as chords of harmony awakened by perfection? Who will gaze upon her charms? as the sun shining in his strength—the fair array of all that's bright and beautiful? Who can describe her form? Omniscient, omnipresent, the source of all power, the fountain of all greatness, the glory of intelligence! Behold her enthroned in the temple of Truth, enrobed in the pure garments of light and immortality! On her right hand stand the attributes of *good* and of *evil*, of *life* and of *death*—on her left is the image of the past—before her is spread the volume of PRODUCTION, open to the view of all, and disclosing the past, the present, and the future. Pointing to the fair unspotted volume, she exclaims—"How long will mortal man prefer darkness to light? How long will he refuse the sweet refreshing stream to revel in polluted waters? Perishing from want, will he refuse food? Parched with thirst, will he pass the cup untasted from his lips?"

Bertholet is of opinion, that, within certain limits, bodies have a tendency to unite in every proportion, and that combination is never definite and invariable, except when rendered so by the operation of modifying causes, such as cohesion, insolubility, elasticity, quantity of matter, &c. In the phenomena of production are evidenced an endless variety of changes, the act of change being almost wholly unknown to us, motion in and through all governing matter in its disposition and movements. Every compound, whether it be elementary or proceeding therefrom, has certain capacities of action and powers of retention, the same varying with the disposition of its parts and qualities, the result being, at all times, determined by the body in action, the limits of cohesive power being the limits of retention; the sum, or product, must, of necessity, be definite, when matter is united with matter in definite admixtures; but the sum of each, in uniting, depends on the nature and qualities of the bodies, and the action manifest in the act of union, this truth being demonstrated by numerous experiments of the practical chemist, and more extensively so by Nature; for example, atmospheric air is an union of compounds in definite proportions, the elements of its composition being oxygen and azote; each of these elements has varying powers, the *maximum* and *minimum* of which are, their condensed and expanded volume. In their expanded volume oxygen has the capacity, but not the power, of action—azote has the capacity, but not the power, of retention; thus, the one blends with the other, as muriatic acid blends with water; but, as oxygen concentrates its volumes, so it attains the power of action, and, as azote concentrates, so it attains the capacity of retention of the oxygenic body, to the extent of those powers, and within those limits; thus these bodies may be united in variable, but not in every, proportion, and each combination is definite and invariable when thus mathematically united, the union being a perfect result, but, in common with all other results, the subject of incessant change of separation and re-combination. In union, these elements being compounds, having one common base, the results proceeding from admixture with other bodies, are still more uncertain, the same depending on the conjoint powers of action and retention of those bodies, and the elements of which they are composed. Experimentalists, by uniting many vegetable acids, and causing them to pass through the fire, produce the result, acetic acid. Nature, in the decomposition of ten thousand organic animal and vegetable bodies, gives the combined results, carbon and lime, but, to produce the one or the other, certain action is necessary, and upon this action alone the result depends.

Chemists, under certain combinations, produce potassium, aluminum, and other, so termed, simple bodies; but in Nature they are produced, or not produced, as the accidents of *circumstance* may determine; for instance, potash is not found in wood under the form of coal, although it is the acknowledged property of wood; but, say the chemists, in the chemical change of the material the matter has been abstracted therefrom; such is not, cannot be, the case, for was it so it would be in the over or underlying beds of other matters, which it is not; and, again, potash is a result of compulsatory union of bodies by fire, as is also aluminum—the one or the other are never known in Nature; the same may be said of calcium, the elements which in union form the product are in innumerable organic bodies, but this product is not invariably developed in aggregates composed of these bodies; and, again, of carbonaceous bodies, it is said that charcoal and diamond are both pure carbon, but such is not the case, for in the first place carbon of itself is a compound product, and its development depends upon the accident of circumstance, for if produced by, and in, oceanic animal matter, its constituents may assume the form and properties of silica; if produced by terrestrial animal and vegetable matter, its constituents may assume the form of alumine or potash; again, the animal matter becomes bitumen, silica, earth, or carbon, as the accidents of outward influences or combinations may determine; and the same may be said of vegetable matter, which, under varying influences, passes into bitumen, silica, earth, or carbon.

Admitting that a compound substance, so long as it retains its characteristic properties, always consists of the same elements united together in fixed proportions, each being in truth the law of affinity governing combinations, still it must be acknowledged, that however true the compound result may be, the maintenance of its body and conjoint properties is, under all influences, very uncertain, for the same law of forces called into operation by accident or by design dissolves the union, and produces other results equally fleeting and inconstant, and depending, in like manner, for the maintenance of form upon absolute exemption from disturbing causes; thus, for instance, the elements of the human body form, in union with each other, numerous results, and the vital principle uniting the whole as one grand result, the phenomena of the living body is produced; but so long as life continues, the several compound substances entering into, and becoming portions of, the body, are but the results of a moment, constantly changing in their disposition, quantities, and qualities; and when by death the general link is broken to pieces, these several compounds maintain their characteristic properties only so long as they are enabled to offer passive resistance to elements acting upon them from without, being prepared at all times to enter into new combinations in obedience to the law or force of affinity. Wood, on the abstraction of its hydrogen, may be converted into dust; with hydrogen and nitrogen this may be converted into vegetable earth; by the addition of water it becomes clay; by the abstraction of hydrogen and accession of oxygen and nitrogen it becomes rock; again, by the abstraction of nitrogen, carbon, sulphuric acid, or other compound through atmospheric or volcanic action, the rock decomposes, and the characteristic properties of the body may be at once, and for ever, obliterated, giving place to others in the recombination of elementary bodies with each other, the change, and the separate depending entirely on the accidents of combination, and the separate or conjoint powers of the bodies coming into contact.

In my last article I spoke of the origin of species of porphyry common to the Deserts, and manifestly of recent formation, the mineral compound serpentine is formed in these localities, in a manner precisely similar to porphyry, magnesia being the chief constituent, and often nearly in the same proportion, holding in union carbonic acid, lime, ammonia, and other compounds, as it is to be seen in large irregular masses disposed within the calcareous strata, and sometimes resting on a bed of sand, formed, and forming in like manner, with the marbles, sometimes uniting with syenite, or being capped with gneiss. I now come to one of the most important compounds known to men, under the form of rock, and upon which several systems of geology have been founded.

GRANITE is a term arbitrarily applied to certain aggregate masses of matter, consisting of grains, or concrete particles, of felspar, quartz, and mica, intimately united by a common base, or cement, which is in general silica or alumine, or both united. These several materials ever vary in their admixtures with each other, and meet in union, as the chances of local action may determine; felspar in general predominates, and mica is the least considerable ingredient of the rock; in some species quartz is wanting, in others the mica; and, again, the material passes, by transition, into sandstone, gneiss, and other rocks. The crystals also differ in colour and magnitude of parts, and also in the arrangement of the particles with each other; some granites resolve into sand, others into clay felspar with clay. The general outline of appearance is also variable; thus, some granites are of loose texture—are formed in hills and heaps, of a roundish form; others present the figure of limestone ranges, having precipitous cliffs; others are in beds and veins; again, some are stratified, others compact, and highly indurated. It often occurs in masses, many miles in extent, surrounded by gneiss, mica slate, and clay slate, and so connected with these rocks that the whole may be considered as one grand result of crystallisation, the whole being of contemporaneous formation. All the different rocks, erroneously termed *primary*, as granite, gneiss, porphyry, &c., alternate, and pass into each other.

Quartz, mica, felspar, and hornblende, are the chief materials of sandstones, shales, and clays; and the proximate principles, or compounds, of which the above compounds consist, are silica, carbon, lime, magnesia, alumine, potash, and soda, these being also the chief ingredients of all matter in aggregate of the earth, and which, as one whole, is termed earth. Granite, in common with all other rock, is developed in an interminable variety of combinations, the causes of effects being as variable.

Granitic rock is, by modern philosophers, termed primary, as being often the nucleus of a chain of hills or mountains; it is assumed to be volcanic, because it is composed of crystalline aggregates, united by one common bases; it is assumed to be wholly destitute of organic remains, because, unlike some rocks, animal remains cannot be distinguished therein; but the above inferences are at variance with facts derived from observation, and, although they constitute the bases of modern systems, they are, nevertheless, false, and inconsistent with the operations of Nature. Granitic rock may have its origin in depositions of oceanic and terrestrial animal and vegetable matter in union, or a local portion of the ocean bed, wholly composed of oceanic matter, of calcareous qualities, may receive, on its surface, terrestrial matter, and, from this overlying matter, the elements which, in union with its own, constitute the material of granite, are derived. In the first instance, the matter, in its disintegrated state, may be a recent formation—and, consequently, in its crystalline state, it must also be a recent formation. In the second instance, the lower bed, which is the recipient of terrestrial matter, may claim priority of origin, but, *in order to form granite*, it is necessary that the terrestrial matter blend with the oceanic, the one and the other being conjoint proximate causes of production, as granite; thus, neither the one nor the other can be termed primary. Rivers convey alumine, potash, and oxide of iron, into the ocean; and these compound principles enter into the ocean bed whereon they are deposited, and unite, with other terrestrial matters, with the matter constituting the ocean bed; in the lapse of time, in the revolutions of ages, the sea becomes dry land, and the united material is then the subject of atmospheric influences, and chemical action induced, the ultimate result being granite. The causes of production are—first, local production of oceanic and terrestrial genera and species; secondly, the union of their bodies in death; and, eventually, the consolidation of the whole by chemical action.

Granite is ever formed by heat, but never by heat of fusion; the disintegrated mass, exposed to excess of atmospheric heat for a succession of ages, must, of necessity, in common with all things else, undergo a change in its parts and qualities; by atmospheric heat, the hydrogen is carried off—the carbonate of lime, called into action, regulates the form of the crystal, and the silica and alumine are the cements to the whole, either together or separately. The size, contexture, and material of the crystal, depending on the union of matter with matter, the action consequent thereon, and the lateral pressure, affecting the whole, in the consequent expansion of parts. The material of which granite is composed, being, of necessity, variable in composition and character, the result of union, as granite, is also ever variable; thus it is, no two rocks of this species can be found alike, for some granitic rocks have large and well-defined crystals—others have small; some are regular in their grain or *fracture*—others are irregular; some are triple compounds—others are quadruple; some are highly indurated, and, like the Egyptian granite, sonorous—others are but slightly adhesive, and crumbling to the touch; some have certain definite compound admixtures—others are aggregates of many aggregates, differing in material from each other, although united by the one common base; again, granite passes, by transition, into all other rocks.

The schistose rocks, so often found capping granite, or in contact with it, are at all times combinations of terrestrial and oceanic earths, and, in general, are found to consist of silica, alumine, magnesia, peroxide of iron, oxide of manganese, potash, carbon, sulphur, ammonia, water, and volatile products; they are invariably sedimentary depositions, carried into the troughs and valleys of seas, or lakes, by the force of rivers and running streams, and therein deposited in the line of action, without reference to the bed on which they rest; but, if this bed be of decomposed matters, it becomes the recipient of compounds from the overlying stratum; thus, in addition to its primary oceanic qualities, it receives alumine and potash, the unerring characteristics of terrestrial matters. Sometimes the sedimentary depositions, producing, and produced, by the action of running streams, contain, without reference to the bed on which they repose, all the elements of granite, and, under all circumstances, granite is formed by sedimentary deposition.

In the Deserts, the terrestrial matters are carried into the sands and calcareous beds by the *freshes*, by rivers, or by percolation from strata to strata; the waters and atmospheric heat acting conjointly on the decomposed mass, a new arrangement takes place in its atomic particles and aggregates, and the whole assumes the form of gravel, in which the compounds of the granite are severally, and independent of each other, produced, and, in this state, cohesion takes place—at first, simply as conglomerate, but eventually, in the lapse of ages, the result is granite; if the waters are abundant, then it is the granite becomes almost wholly composed of quartz. In the Deccan, the blue lias, as it is termed, developes a series of changes into trap, and from thence into granite, and, in all these changes, the internal character of the mass is precisely similar, the arrangement of its aggregates and its final development depending upon local influences. The recent granites of the Deserts, in numerous instances, pass by imperceptible shades, into sandstone, and have a laminated structure, being sometimes but slightly adhesive; in Ceylon, the several rocks pass so much into each other as to defy classification; in India, I have observed it exfoliating in concentric crusts.

The most conclusive evidences that granite is produced from secondary causes, affecting primary matter, and that it is sometimes of very recent formation, are the mineral aggregates inclosed within its matrix, or entering into its composition. Many of the granites contain iron and tin in abundance, these metals forming sometimes full three-fourths of the bulk of aggregate; for the production of the one or the other of these metals, atmospheric action is absolutely necessary, and their combined state so distinctly negatives volcanic action, more particularly so as sulphur, the presence of which is necessary for the production of metals, is at all times abundantly manifest in granitic beds. All the metals are produced by, and in the union of, oceanic and terrestrial matters, and by electro-chemical action—and this action cannot be sufficiently induced by internal heat; granite, also, of necessity, contains a vast portion of atmospheric air, and more particularly ammonia, which is an acknowledged animal product; it also contains molybdena, silver, copper, lead, zinc, bismuth, arsenic, titanium, tungsten, and cobalt, all of which compounds are positively identified with the granitic matrix, as are also schorl, garnet, idocrase, tourmaline, beryl, emerald, actinolite, chlorite, talc, compound felspar, steatite, and numerous other compounds, many of which could not have preserved their primary form and qualities had they been inclosed in a fused mass of matter, such as it is affirmed to have been in common with lava. Again, in its disposition, it is equally variable and inconstant, as are other mineral bodies, being above or below the strata in solitary clumps, in hills, or mountain chains, as the chances of locality may determine, being distributed in and over the surface of the earth in like manner with limestone and sandstone, without order or form defined. In Egypt it is found resting on a bed of clay, in undisturbed masses; it is seen in its several stages of production varying in its composition and character, and, in the ultimate result, being more conglomerate, of fine granular texture, approximating to crystalline limestone, of confused crystallisation, and, at times, approaching porphyry in beauty and sonorousness. Again, its colours are infinitely varied, the same depending upon the accidents of combination.

In England, as in the lower granite veins of Rubislaw, and in some of the Cornish mines, it is found in its soft state, the same hardening upon exposure to the atmosphere; it forms beds and veins when deposited over irregular surfaces, and is, by this means, introduced into fissures of stratum previously indurated.

Granite is sometimes almost wholly composed of quartz, which also enters largely into the composition of gneiss, mica, schist, and other rocks termed primary; and is sometimes, as previously observed by me, the material filling up large fissures, or intersecting the rocks in veins, as particularly exemplified in limestone, in serpentine, and in argillaceous schist, its degree of purity depending on the accidents of association. It unites, in its composition, hornblende, which is another chief component of many rocks, being a compound of silica, alumine, lime, magnesia, and water, with a trace of potash, the alumine and potash denoting the presence of a certain portion of terrestrial matter; united as hornblende, they enter largely into the composition of mountain rocks, syenite, and greenstone, but do not, of necessity, form a part of granite, as is exemplified in the Egyptian granites. Mica also enters largely into the composition of rocks and earths; it occurs with quartz and felspar, in granite and gneiss, but does not, of necessity, form a constituent of granite, although it denotes some species of this rock; it is a characteristic of the earths, being widely disseminated through the terrestrial beds; its chief constituents are silica, alumine, oxides of iron and manganese, and potash, and it is produced invariably by terrestrial influences; silica and iron are common to both elements, but the potash and alumine mark terrestrial action. Felspar also enters largely into the composition of granitic and other rocks, and is abundantly developed in the upper crust of the earth; its constituents are in prismatic felspar, silica, alumine, potash, and oxide of iron.

In drawing conclusions by the rules of analysis, as well as by observation, it is evident that the base of the mineral body, termed granite, is oceanic; the matters introduced in varying quantities, and which give its peculiar characteristics, are terrestrial, and the ultimate result, as a crystalline compound, is induced by atmospheric action, the aerial volumes entering into, and becoming identified with, its consolidated state. That, in many instances, it protrudes through the overlying beds is an unquestionable fact, but the causes of effects are demonstrated by Nature in the present day, the submarine hills and mountain chains increasing within the waters, and consolidated or calcareous, retaining their respective quantities and qualities, until they become the recipients of oceanic products, when the extraneous matters from the overlying bed enter into, and become identified with, the primary base on which they rest. In proof of this, we have only to extend our views to those localities affected by the action of tropical rivers; the stream of the Ganges, during the rainy season, holds in suspension nearly one-fourth of its volume in mud, the same being composed of terrestrial and oceanic products; this vast accumulation is diffused over the bed of the Indian Ocean, including a space of some hundred miles, but principally in the line of tidal influence; thus, to the more distant points, a periodical deposit of terrestrial matters forms on the ocean bed, and, where the submarine hills divide these currents, the deposited matter encircles their base, and sometimes blends with their material; the beds of seas fill up, by periodical depositions, or by disturbing causes, but the underlying bed, forming the nucleus of the group, cannot become crystalline until it is exposed to atmospheric influence, not, of necessity, by direct exposure, but by electro-chemical action manifestly proceeding therefrom.

Let the unbiassed observer look at many of the granitic formations, they preserve the like direction and the like perpendicular faces with limestone, their sharp angles being preserved entire through a succession of ages, there may or may not be marks of disturbance in and around them, but in general there are not, the sedimentary deposits being in their primary state, and evidently affecting the material, and affected by it; thus, when granite is in contact with limestone, the parts immediately in contact become more highly crystalline; this geologists would impute to the heat of the granitic mass, but will analytical chemists say so much? Will they tell us that quartz is produced by immediate contact with heat? that a fused mass of matter can be protruded through numerous overlying beds, without disturbing those beds, and assume a form such as the granitic mountain chain presents? that proceeding, as is supposed, from one common fountain—the womb of the earth—it should be so dissimilar in its compounds and qualities, and still retain compounds which are of inflammable qualities, without those compounds being injured? I cannot believe it possible.

It is said that fossil organic bodies have never been found in granite; such is not the fact, they have been found in the Aberdeen and other granites in the finest state of preservation, and their presence is equally manifest in the quartz nodules of granite as it is in the carbonates of lime.

LECTURES ON GEOLOGY, BY PROFESSOR PHILLIPS.—The first of a course of six lectures, "On the Fundamental Truths of Geology, with Theoretical Inferences and Practical Applications," was delivered by John Phillips, Esq., F.R.S. and G.S., in the Theatre of the Royal Manchester Institution, yesterday week; we shall publish in our next a pretty full report of the introductory lecture, and continue them in consecutive Numbers, until the whole, which we have reason to believe will be of great interest, shall be placed before our readers.

CREATION OF LIFE BY THE AGENCY OF ELECTRICITY.—At a recent meeting of the Entomological Society, the subject of Mr. Crosse's production of insects by the voltaic battery, which made some stir from its introduction before the members of the British Association, at their meeting in Bristol, in 1836, was revived by Mr. Newport, who stated that a friend of his, at Sandwich, had produced the *Acarus Crossii* from a mineral solution by a current of voltaic electricity, continued for eleven months. Mr. Gray, F.R.S. of the British Museum, who was present, doubted the possibility of their production, as similar experiments had been made by Mr. Children of the same establishment, but without any success.

FOUNTAIN OF FIRE.—I have just visited a jet of natural gas, which rises through a small river about 1½ mile from Pont-y-pridd (Newbridge), Glamorganshire; the brook has its source in the valley between the Llantrissant and Dinas Mountains, flows into the Ronda, and joins the Taff at Newbridge. In the centre of this river, or brook, is a continued rising, or strong bubble, of about eight or ten inches above the stream, as though the water was blown up by a current of air, or natural gas (and exceedingly cold to the hand)—this, when ignited, produces a powerful flame, from four to five feet in height, with intense heat; and the smell is the same as burning sulphur. There are two jets in the field adjoining, and three on the other side the brook; but they are not so strong as the one passing through the water. The effect by night is grand and beautiful; having the appearance of one mass of large brilliant blue flames. This singular phenomenon was accidentally discovered by one of the men at the adjoining mill, about two months since. Not having yet seen any account of it in print, I have sent you some particulars collected on the spot.—*Correspondent of the Athenæum.*

SUPPRESSION OF THE SMOKE NUISANCE.—At the usual monthly meeting of the Commissioners of the *Birmingham Street Act*, on Monday last, on the minute in reference to the subject of an inquiry as to the best means of effecting an abatement of the smoke nuisance, having been read, Mr. Turner said that the committee were not prepared to make any report, but he was happy to inform the commissioners that the nuisance so long complained of in Birmingham, arising from the smoke of steam furnaces, was in a fair way of being done away with. The patent of Mr. Williams (of which Mr. Dircks was the agent) had been tried at Mr. Clifford's mill, in Fazeley-street, with the most complete success; and he believed that if the principle were generally adopted, the complaints in reference to this subject would not only be put an end to, but that a considerable saving would be effected by mill-owners and manufacturers in the reduced consumption of fuel; he thought it was the duty of those commissioners who had furnaces to give the plan a fair trial, and thus set an example to others in abolishing a nuisance in Birmingham which had become almost intolerable.

LIVERPOOL AND HARRINGTON WATER-WORKS.—We understand this company have just started a powerful engine at their new works, Lodge-lane, Liverpool, made by Mr. John Bigby, Hawarden, Flintshire. The engine, which is able to raise 94,000 gallons of water per day, is a fine specimen of workmanship, carrying out all the advantages of the expansion principle to the utmost extent, with a variety of improvements for economising fuel; the "start" took place in the presence of several of the leading engineers of the town, and was completely successful, and fully maintained the high reputation of the establishment from which it emanated.

MEETINGS OF SCIENTIFIC BODIES.
IN THE ENSUING WEEK.

SOCIETY.	PLACE OF MEETING.	DAY.	HOUR.
Royal Botanical	Regent's-park	Saturday	4 P.M.
Royal Geographical	3, Waterloo-place	Monday	8½ P.M.
British Architects	16, Grosvenor-street	Monday	8 P.M.
Medical	Bolt-court, Fleet-street	Monday	8 P.M.
Statistical	4, St. Martin's-place	Tuesday	8 P.M.
Linnean	Soho-square	Tuesday	8 P.M.
Horticultural	21, Regent-street	Tuesday	3 P.M.
Civil Engineers	25, Great George-street	Tuesday	8 P.M.
London Electrical	Adelaide-street	Tuesday	8 P.M.
Chemical	47, Leicester-square	Tuesday	8 P.M.
Society of Arts	Adelphi	Wednesday	7½ P.M.
London Institution	Finsbury-circus	Wednesday	12 P.M.
Microscopical	21, Regent-street	Wednesday	8 P.M.
Royal	Somerset House	Thursday	8½ P.M.
Antiquaries	Somerset House	Thursday	8 P.M.
Royal Institution	Albemarle-street	Friday	8½ P.M.
Botanical	20, Bedford-street, Cov.-g.	Friday	8 P.M.
Royal Asiatic	14, Grafton-street	Saturday	2 P.M.
Westminster Medical	Exeter Hall	Saturday	8 P.M.
Mathematical	Crispin-street, Spitalfields	Saturday	8 P.M.

PUBLIC COMPANIES.
MEETINGS.

Ionian Bank	Guildhall Coffee-house	March	14	2.
West Durham Railway	George and Vulture Tavern		16	12.
Bisco Bridge Mining Association	George and Vulture Tavern		17	1.
Manchester and Leeds Railway	Office, Manchester		17	12.
London and Brighton Railway	London Tavern		17	1.
Aylesbury Railway Company	White Hart Inn, Aylesbury		17	12.
British Gas Light Company	11, George yard, Lombard street		23	1.
Gt. Wh. Charlotte Mining Assoc.	George and Vulture Tavern		29	1.
Canada Company Company	Canada House		30	1.
West London Railway	11, Abchurch lane	April	7	1.

CALLS.

East Trefoil Mining Company	5s. March	14	6, St. Mildred's-court.
Bristol and Gloucester Railway	5l. per sh.	21	Barnet, Hoare, and Co.
Northern Coal Mining Company	2l.	28	Newcastle Joint Stock Bank.
Northern and Eastern Railway	5l. April	2	Masterman and Co.
Hungerford & Lambeth Susp. Br.	2l. 10s.	6	London and County Bank.
Mine-Gerass Mining Company	1l.	12	Barclay, Bevan, and Co.
Miners' Company	10l.	15	Glyn and Co., or office.
Irish Waste Land Im. Society	1l.	15	As former calls.
Cambrian Iron & Spelter Co.	2½l.	17	As former calls.

NOTICES TO CORRESPONDENTS.

Patent Disc and Reciprocating Engine.—We have received the report of Josiah Parkes, Esq., C.E., which shall receive early attention.

Combustion of Coal.—We have to acknowledge receipt of the letter of our Manchester correspondent, which we must decline inserting, as containing no new facts, or, indeed, any feature of novelty, if we may except the personalities in which the writer indulges, exceeding anything which has come under our notice. We regret personalities at all times, for they detract from the value of a communication, while abuse or invective can never fill up the vacuum created by the absence of argument or facts. We beg to assure our correspondent that the paragraph to which he refers, and which he supposes to have emanated from one of the parties interested, in making known the success attributed to the invention, was framed from the report to which it alludes, and which, on a second perusal, appears to us to require no alteration. Another paragraph of a like nature will be found in our columns of to-day. We are not in the habit of inserting paragraphs transmitted without giving the authority of a correspondent, and then only on the conviction that they are not manufactured to advance any sinister object.

From what we have heard of the Llandudno Patent Engine Company, we are desirous of becoming further acquainted with the patentee and the apparently economical method of applying water power which he has been the means of introducing. Will our correspondent favour us with some particulars to lay before our readers?

West Cork Company.—Some remarks on the extraordinary decision of the House of Lords in this case are deferred until our next.

We cannot insert the communication respecting the Westminster Loan and Investment Joint Stock Company—we know nothing whatever of the parties referred to, and have strong doubts as to the correctness of several of the assertions of our correspondent.

"N. V." (Holywell).—Whether the desired information be received or not, we hope often to hear from our correspondent, to whose communications we shall at all times, we need hardly add, feel pleasure in paying the utmost attention.

"F. W. B." (York).—Probably in our next.

"H. M." (Redruth).—The papers referred to have never reached us—should our correspondent possess, or be enabled to obtain, duplicates, we should esteem it a great favour were he to forward them, as we are very desirous of having such valuable statistical information as must be contained in the documents mentioned.

Lord Audley v. Joseph Pike, Joseph Pike v. Lord Audley.—We are obliged to our English correspondent for the information conveyed as to the proceedings in the English and Irish Courts of Chancery between the noble lord and the ignoble plaintiff. We understand Mr. Henry Staines is now employed by Lord Audley, having cast off his late client Joseph. This must be glorious things for the West Cork Mining Company and the lawyers. More litigation, more delay. We hope, [illegible] the sake of [illegible] that government will not be subjected to the cost of Joseph's travels in search of another Ballydehob on the other side the Atlantic—in other respects it might be profitable to the community.

Mr. Parkin's paper on Railway Engineering, Mr. John Phillips's on an Improvement in the Ascent and Descent of Deep Mines, Mr. Dunbavand's Desultory Observations on Various Subjects, and several miscellaneous articles, are unavoidably postponed.

Vale.—The letter of "D." came to hand, but too late for insertion in our present Number.

In consequence of the numerous applications made to the Editor on subject of Advertisements which have appeared in the columns of the Mining Journal, with reference to [illegible] the working of mines and the construction of railways, arrangements have been partially effected, whereby all information necessary can be acquired on application at the office of the Journal, as also reference made to the various models, plans, drawings, and specifications, and where [illegible] may be seen, it being intended to devote a room to that express purpose. [illegible] the office of the Mining Journal the medium of acquiring information on all matters connected with mineral property, where plans and particulars of estates and mining materials for disposal may be consulted and obtained. Experienced agents in the several mining districts will undertake surveys and furnish plans, sections, and reports, on mineral property and mining undertakings.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, MARCH 12, 1842.

The financial statement submitted by Sir R. Peel, in the House of Commons last night, in the enumeration of the proposed new taxes, includes an export duty of 4s. per ton on all coal shipped, whether in British or foreign vessels. Heretofore this duty has been confined to coal exported in foreign ships, with the view of affording encouragement to the British shipping interest, on which no duty was imposed. The operation of the reciprocity duties, however, has been to exempt foreign ships from the duty, which it was originally intended to levy on the export of coals, and which was exemplified by the honourable baronet in reviewing the exports during the last ten years, the quantity exported rapidly increasing, while the duty received was in a much greater ratio diminishing.

In 1831 the quantity was	533,000 tons	Duty	£30,000
„ 1833	448,000	„	84,710
„ 1838	1,129,000	„	[illegible]
„ 1840	1,307,000	„	8,000

Thus it will be seen, that, while in 1833, a duty of 84,710l. was received on the exports of that year, this amount had, in the year 1840, dwindled down to 8000l., or a reduction of nine-tenths, while the quantity had increased threefold—so that, instead of a revenue which, based on the returns of 1833, should have been 105,000l., only 8000l. was actually received. The proposition of Government is, that in future all coal exported, whether in British or foreign vessels, shall be subjected to the duty of 4s. per ton, thereby, as Sir R. Peel observed, securing a revenue, from this source, of about 200,000l. a year—at the same time, operating to the encouragement of native industry—coal being necessary to manufactures, and contributing, as it does, by its export, to increase competition abroad with our manufactures at home, and thus rendering a most important material of our own industry a great assistance to that of rival nations.

The papers relating to the sulphur question, and the claims of British subjects on Sicily, moved for by Dr. Bowring in the House of Commons, were laid on the table of the House on Thursday last, from which we learn the exact terms on which the negotiation has been concluded—a mixed commission having been appointed to liquidate the claims of British subjects arising out of the sulphur monopoly. The claims laid before the committee appear to have amounted to 65,610l. 5s. 5d., whereas the awards are about one-third of that claimed, being 21,307l. 14s., with interest at 6 per cent. per annum, from the date of the claim to the period at which the payment may be effected, and which, it is presumed, will take place on an early day, his Volcanic Majesty having (it is said) "caused arrangements to be made for paying off the sums awarded with as little delay as possible," although not bound to do so, by the agreement entered into, for twelve months from the date of the commission being closed. The following comprise the heads of agreement entered into between the two Governments, defining those who should be entitled to compensation:—

1. Those parties who, having become mine proprietors or lessees previously to the 9th of July, 1838, the date of the contract with Taix and Co., may have experienced impediments in the extraction or exportation of their sulphur, and may, in consequence of those impediments, have suffered losses duly substantiated.

2. Those who, previously to the said period, having entered into contracts for the delivery of sulphur, may have found it impossible to fulfil their engagements, or may have been deprived of the profits stipulated for on their transactions.

3. Those who, having bought sulphur, the exportation of which had been either prohibited or limited, or subjected to more onerous conditions, may have, in consequence, sustained losses capable of positive proof.

The report of the commissioners proceeds to state the course they adopted for ascertaining the correctness of the claims made, and the grounds on which they made their award—expressing their conviction "that the claimants have been fully indemnified for such of their losses as can, strictly speaking, be attributed to the monopoly contract, which was abolished in July, 1840."

Such is the sum and substance of the papers submitted to the House, involving a question which rendered, at one time, questionable whether other proceedings than those to which a commission of inquiry is confined would not have taken place, while the important position in which the mine adventurers and mining interest of this country is placed, has been entirely overlooked or neglected. We have so oft invited attention to the subject, that any observations we may make can only be a repetition of the oft told tale; but we cannot allow the present opportunity to pass without again expressing the opinions we entertain, and, moreover, endeavouring to impress on those who are embarked in sulphur mines the duty they owe to themselves of bringing immediately under the consideration of Government the injustice done to the adventurous capitalist, by allowing his Majesty the King of the Two Sicilies to get out of the mess in which he had involved himself by the mere payment of 21,000l.—and that not by way of reparation to the consumer or the shipping interest, who were the principal sufferers, but to the British claimants, who were proprietors of sulphur mines in Sicily. Why, the very circumstance of raising the question whether he should compensate those who introduced capital into his country, to employ and feed the population, is in itself sufficient evidence of the dishonesty of the man.

Those who have recovered from the Neapolitan Government, it will be seen, are parties whose claims were but of a secondary nature—they have been allowed contemplated profits with 6 per cent. interest—they have been satisfied not for any *losses* they might have sustained from their operations or the fluctuating state of the English or foreign markets, but have had an award made in their favour for imaginary *profits* which they might have realised—and yet the consumers of England, taking 35,000 tons per annum, which in two years alone would make a difference of 400,000l. in the cost of the article rendered in this country, to that which was its value before the monopoly of Taix and Co.—are left unnoticed. If we look further into the question as to its bearings on the mining interest, we shall find that to the enterprise of the miner the consumer is more indebted for the reduction of the price in the article than to any act of the Government, who appear to have confined their interference to the protection of the Sicilian, and not the home miner. Upon the price of Sicilian sulphur being raised to 13l. or 14l. per ton, consequent on the monopoly complained of, attention was drawn to the vast resources of this country in the production of an article of commerce from the otherwise refuse ores, or such as were found to be too strongly charged with sulphur, and containing too small a proportion of metallic products to pay the expense of working at the price obtained for sulphur antecedent to that period. The advances made in science also aided the employment of sulphur ores or pyrites in lieu of Sicilian sulphur, and hence the article became of commercial value, and operations on an extended scale, more especially in the county of Wicklow, carried on with a spirit of enterprise which has been ill repaid. Confining ourselves, for the moment, to this particular district, we have only again to observe that it can produce a quantity of ore equal to the imports of foreign sulphur, and which can be rendered to the consumer at a price far below the latter article, if that protection be only afforded by our Government at home. The consequence of the mines being opened to an extent so as to secure to the consumer his supply at a reasonable cost (say, 24s. to 25s. per ton, delivered at Wicklow), proved the value to be attached to our home mines compared with those of his Sicilian Majesty, who thereupon having sold his stock for ready money (at less than one-half the market value previously obtained for the article)—expressed his resolve to throw off the duty of 1l. 15s., or thereabouts, and which he announced should take place in January, 1842. The result of these dishonest moves on the part of his Majesty has been, that the price of sulphur ores which would pay at 20s. per ton at the mines, or 25s. put on board at Wicklow, and consequently standing the consumers at Runcorn, St. Helen's, and other immediate localities, at 31s. to 32s. per ton, were reduced, and now are at least 20 to 25 per cent. under the price previously obtained, to which the miner was justly entitled—as affording him remunerative returns for the capital employed—while he conferred a benefit on the consumer, and secured him from the effects of foreign monopoly.

We could well fill our columns with arguments and facts in support of our case, but if the mining interest itself will not take up the question, how can it be supposed, with influence such as they possess, that any act or advocacy of ours can effect any real good? Our object, therefore, is rather to direct their attention to their own interests, leaving them to pursue the course they may think most fitting, while our columns will ever be open to discussion on the subject, and our best efforts afforded to the enforcement of justice being done to the English capitalist who embarks his property in our home mines, or, at least, to his being placed on an equality with the English capitalist who places his money in those of foreign mines, more especially as in the present case, where the Government had not even the honesty to afford protection to those who had been the means of developing the resources of the country and employing the population.

The following is a list of claims, according to the Parliamentary returns, presented to the commission for losses sustained by British subjects, from being impeded in the production or exportation of their sulphur by the monopoly, showing the quantities charged for and allowed, and the several sums awarded by the commission—the numbers 1, 2, and 3, in the first column, apply to the several grounds on which the award was made, as noticed in the preceding remarks:—

Class.	Claimants.	Charged.*	Allowed.*	Total claims. English (ex. 57).			Total award. Engl. (ex. 57).		
1	G. Wood and Co.	133,479	106,982	£14,360	6	10	£6482	2	1
1	G. Wood and Co.	106,847	84,679	11,849	19	9	3804	14	9
1	G. Wood and Co.	9,636	7,719	1,549	13	6	646	15	0
3	G. Wood and Co.	7,243	7,243	3,486	19	0	1157	17	11
3	G. Wood and Co.	2,847	2,847	1,377	15	0	421	1	1
1	Morrison and Co.	26,991	12,913	1,774	1	8	508	15	8
1	Morrison and Co.	6,400	6,400	1,915	8	11	761	0	1
1	Morrison and Co.	3,300	3,300	706	16	0	284	11	3
2	Morrison and Co.	3,800	3,800	260	0	0	231	18	7
2	Morrison and Co.	3,000	3,000	739	13	6	702	2	1
2	Morrison and Co.	3,000	—	807	16	8	—		
3	Morrison and Co.	2,716	2,716	670	9	2	219	4	10
3	Prior, Turner, and Co.	21,957	16,066	10,240	15	4	3506	13	6
3	W. Leaf and Co.	26,136	26,136	12,731	0	4	1578	19	9
3	Frank Bell	2,500	2,500	1,172	18	6	263	8	2
3	F. and R. Sanderson	2,500	2,200	621	5	1	621	4	7
2	Mathey, Oats, and Co.	700	700	211	5	0	52	12	8
3	Thorburn Rose	671	671	158	12	0	61	6	0
2	Samuel Lowell	6,700	—	1,160	0	0	—		
	Total cantars	395,420	299,140	£65,610	5	5	£21,307	14	0

* For quantities of sulphur (in cantars), the production or export of which was impeded.

The letter of a correspondent, which appears in our columns of to-day, impugns the accuracy of our statements with reference to the cost of Sicilian sulphur—whose letter is also deserving of note, as holding out encouragement to the home miner. We are glad, at all times, to be set right, for it is hardly to be expected that we can be in possession of all detail connected with the varied subjects which form matter of Editorial observation and comment, whether as regards the mineral productions of "the bowels of the earth" or the legal productions of the "ermine on the Bench"—whether discussing railways or banks—in exposing fraud—or lending our humble aid in the development of our mineral resources—and the application of chemical and metallurgical science, not to omit the more important science of geology, or that of practical engineering. We do not profess to be possessed of more than ordinary acquaintance with those subjects on which we are led to express an opinion, but we invariably avoid committing ourselves, without possessing something like accurate data, or such, at least, as may be expected to pass current.

Such was the course observed as regards the comparison between foreign and home sulphur, and we are disposed to adhere to our own figures until our correspondent is prepared to give us facts as well as figures. Mr. Leighton says, he considers the price quoted by us, put on board, as "very much too high," and accordingly, without giving any grounds on which he would enable us to form an opinion, he fixes the price in Sicily at 2l. 5s., instead of 4l.—the latter being our quotation. We presume that our correspondent is aware of the distance of the mines from the shipping port—the cost of extraction, and shipping and commission charges, which, if he would add together, he will find far exceed 2l. 5s. per ton. Again, as to the duty, he is there in error, as he will discover if he refers to calculations made in former Numbers of the Journal, taken from official returns and documents; and then, again, on subject of freight, we differ a trifle. Now, without entering into a discussion whether we or our correspondent are right or wrong—for, on that subject we shall be glad to compare notes, through the medium of the post—we will at once proceed to notice his letter on the more important point, that of the sulphur mines of this country being able to compete with those of Sicily, which he assumes, for argument sake, can be imported at 4l. 10s. per ton, including the import duty, but allowing the export duty to be withdrawn.

We will not enter into the question how far the British sulphur could compete with this reduction in price, if effected, for our correspondent does not furnish us with any *data* on which to arrive at an opinion; yet he asserts, and we are willing to take his assertions as facts, which are to be determined by the result of scientific inquiries and practical tests, that "sulphur, in a state of the greatest purity, can be obtained from sulphur ore, mundic, or pyrites, by a cheap and easy process, which being carried on at the mines, all extra charges would be saved." We do not propose following our correspondent in his theory, or the practice adopted in smelting copper ores, while we may draw attention to his statement, that "at present a quantity of sulphur is required in smelting copper," which process, he continues in his opinion, may "be gradually improved, and, indeed, ultimately so modified as to be accomplished without the use of sulphur;" and further adds, that if works were established for commencing the manufacture of sulphur, a quantity of highly oxidised metals would be obtained.

There can be no doubt but that the theory advanced by Mr. Leighton is well worthy the consideration of the sulphur miner, or the copper miner, where his ores are of low produce, and strongly impregnated with sulphur, and, under any circumstances, whether "a flux quite as effective, and not so expensive or injurious in its use as a compound of sulphur and iron" in the smelting of copper ores, can be obtained, as asserted by our correspondent, or not, is a matter of little moment to the sulphur miner, as he would have the means of making more of his produce by an extended market for the article. We wish some of our able correspondents, interested in the subject, would take it up, and avail themselves of our columns in drawing attention to its importance.

Improved Steam-Engine.—(*From a Correspondent.*)—Messrs. Rennie have just completed the erection of a steam-engine on the Hornblower and Woolf principle—two cylinders—one working with high pressure steam as it issues from the boiler, and the other a low pressure, using the steam as it issues from the cylinder, which it then expands five times, consuming only between 2 lbs. and 3 lbs. of fuel per horse-power, or about one-third of the usual quantity. The qualities of this engine have been tested in the presence of several scientific men, when it was found that on a trial of eleven working hours it consumed at the rate of 132 lbs. of coal per hour, the engine then exerting an effective working power of sixty horses; this was at the rate of only 2·2 lbs. per horse-power per hour. The water required for condensation was only about one-third of the usual quantity. The duty, taken in Cornish measures of 94 lbs. of coal per bushel, was equal to 85,000,000 lbs. raised one foot, or upwards of 101,356,758 lbs. raised with one cwt. of coals; in the performance of this duty the engine averaged nineteen strokes per minute. It is a reciprocating rotary engine, and owes its great superiority to judicious proportions and superior workmanship.

Insubordination of a Mining Captain.—At a meeting of magistrates, held in Truro, on Wednesday last, Captain William Thomas was charged with committing an assault on Benjamin Chivall. It appeared from the evidence that the defendant had been formerly engaged as captain at the North Wheal Towan Mine, but having been discharged by Mr. Bockering, the purser, the assault originated in a disputed right on the part of Captain Thomas to prevent the removal of tin for sale, he holding a slight interest or share in the mine. It also appeared that he had endeavoured to assume the control of the mine subsequent to his dismissal. The magistrates expressed their opinion that it would be most dangerous to the mining interests of Cornwall, to permit an agent, because he might also be a shareholder, to set the manager and purser at defiance. The assault having been proved, Captain Thomas was convicted in the penalty of 20s. and costs, or, in default of payment, two months imprisonment. The fine and costs were paid.

DATA FOR THE USE OF BLAST-FURNACE MANAGERS.

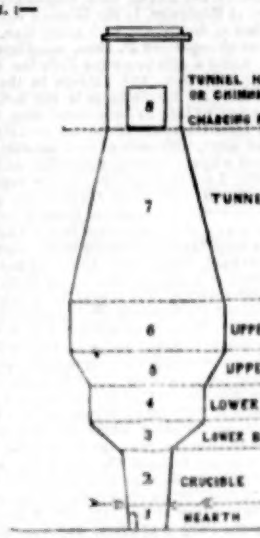
BY SAMUEL BALDWYN ROGERS, ESQ.
[Mineral and Metallurgical Chemist, Nantyglo, Monmouthshire.]

5.—PREPARATIONS FOR SMELTING.

In my previous letters is stated an average of the materials required to yield a ton of pig-iron, in this district of country, and with a cold-blast, and which, to save the trouble of repeatedly referring to such letters, I will here recapitulate:—1st. 4480 lbs. of coke, presumed to contain 4032 lbs. of pure carbon, and 448 lbs. of earths, or oxides. 2d. 5040 lbs. of calcined mine, containing 2240 lbs. of iron, 960 lbs. oxygen, and 1840 lbs. of foreign earths and oxides. 3d. 2240 lbs. of limestone, estimated to contain 1179 lbs. of caustic lime, 926·6 carbonic acid, 89·6 of earths, and 44·8 of water. 4th. 360,000 cubical feet, or 27,000 lbs. of atmospheric air, of which 5649 lbs. of oxygen, 19·771 nitrogen, 190 lbs. of water, in vapour, and 40 of carbonic acid, are supposed to be blown into the furnace, and 1350 lbs. are allowed for leakage of apparatus and loss of air at tuyeres, &c.

The atmospheric air, and all the oxygen, hydrogen, nitrogen, and carbon having previously been disposed of, we will now proceed to the separation of the lime, silex, and other earths and oxides, from the iron in the furnace; for, it should be particularly observed, that iron is an educt, and not a product, of the operation in question, as some modern philosophers would tempt us to believe, except so far as it may be combined with carbon, or other alloying bodies; and good and bad are qualities governed entirely by the more or less admixture of foreign matters with pure iron, and not from any inherent properties it may possess—otherwise we should, on the detection of such properties, have proof of the existence of more than one element termed iron, and chemistry would, consequently, be obliged to remodel all its metallurgical philosophy. Previous, however, to entering upon the blast-furnace process, I will say a few words as to an improved shape and dimensions of such furnaces, and also give the form of analysis of several kinds of iron ore, limestone, &c., in order to show the best mode of proceeding for furnace managers to pursue with their respective materials; the actual analysis must, of course, be locally determined by the operatives themselves, who should also acquire an accurate knowledge of the action of the earths, and reaction of the compounds to be operated upon at known temperatures; for, under any other circumstances, the blast-furnace process will be subject to great and continual irregularities, and the results no better than, if not entirely, the effect of chance.

The furnaces here (*i. e.*, in Monmouthshire and South Wales) are about forty-five feet in height, with single boshes, tapering from fourteen or sixteen feet diameter at their tops to five or six feet at their junction with the crucible; and the tunnel, or body, of the furnace is a truncated cone, of the same diameter as the top of the boshes, tapering in a height of twenty-eight or thirty feet, to five or six feet across at the charging plate. Instead of this construction, I would recommend a furnace of the following shape and dimensions, viz.:—



1. The hearth to be five feet across, from side to side—the length and depth according to the fancy of the operator.

2. The crucible to be five feet square at the tuyeres, and six feet square at the top, in a height of six feet.

3. The lower bosh to spread from six feet square at bottom, to twelve feet diameter, in a height of four feet, producing an angle of about 54 degrees.

4. The lower body to be cylindrical for four feet in height and twelve feet diameter.

5. The upper bosh twelve feet diameter at bottom, and eighteen feet at top, in a height of four feet.

6. The upper body to be eighteen feet diameter, and cylindrical, to the height of six feet.

7. The tunnel, a truncated cone, eighteen feet diameter at bottom, and nine feet at top, and a height of twenty feet.

8. The charging-plate, chimney, or tunnel-head, at the pleasure of the operator.

With a furnace of this description, it is confidently imagined the materials would be less compressed about the tuyeres than they now are, and, consequently less resistance would be presented to the blast, which would then not regurgitate at the tuyeres to the extent it now does, and a better effect may certainly be expected. In furnaces of the present construction the first cause of their falling of in make and quality is, impediments collecting about the tuyeres, arising from the imperfect fusion of the materials under operation, and the pressure of an incumbent column of mine, coke, and limestone, to the amount, probably, of forty or fifty tons—the result often being a rocky mass of cooled cinder (in which are imbedded shots of iron, pieces of coke, and a mixture of raw and partially-fused mine and limestone), occupying nearly the whole area of the crucible, and to the depth of sometimes more than two feet from and above an horizontal section of the furnace at the tuyeres; in which case there is often one-third of the blast prevented from entering the furnace, and the temperature, consequently, becomes reduced to a degree inadequate to the production of any desirable result. The only advisable means of removing the impediments alluded to are, either to cut them out of the hearth and crucible per force, or to throw the furnace, by the aid of a very active flux, into a fit of scowering, until she has sufficiently cleared herself. One of the advantages of a hot-blast is, the ready and rapid fusion of the materials in the crucible of the furnace, thereby preventing the accumulation of such impediments as are above alluded now. Now, with regard to the analysis of materials for the use of the ironsmelter, the contents of the mines, limestones, and coke ashes, should be tabulated somewhat thus—

TABLE OF CALCINED MINES.

100 parts, by weight, contain of	Iron.	Oxygen.	Silex.	Lime.	Alum.	Mang.	Total.
Red vein mine	42	18	22	1	16	—	100 parts
Spotted vein	40	17·1	28·9	—	12	2	100 —
Black balls	48	20·6	27	—	8·4	1	100 —
Black pins	41	17·6	29·4	—	11	—	100 —
Grey vein	46	19·4	31·2	3	14·4	1	100 —
Brown veins	38	16·2	24·4	1	19·3	2	100 —

[These names and quantities are necessarily assumed, and that for two reasons—first, it would be impossible to give a table of the elements of mines, &c., that would suit for any two iron works; and, second, few ironmasters would be pleased with a public exposure of the value of their respective materials. These assumed tables will, however, answer every purpose as data for the smelter.]

TABLE OF LIMESTONES.

100 parts contain of	Lime.	Carb. acid.	Silex.	Alum.	Magn.	Ox. iron.	Total.
A white limestone	54·90	42·12	1	·5	—	·5	100 parts
Brown ditto	49·2	34·9	14	1·5	—	·4	100 —
Grey ditto	50·4	39·6	5	3	1	1	100 —
Shelly ditto	53·2	41·8	2	2	—	1	100 —

TABLE OF COKE ASHES.

100 parts contain of	Silex.	Alum.	Lime.	Car. ac.	Mag.	Ox. iron.	Total.
Coke ashes from blk. vein coal	64	26	2·24	1·76	—	6	100 parts
Ditto from red vein ditto	60	24	3·6	8·4	3	·6	100 —
Ditto from big vein ditto	56	32	6·10	4·91	—	1	100 —
Ditto from old coal	55	27	10·08	7·92	—	3	100 —

As it may sometimes be necessary to use marls, shales, fire-clays, jacks (a bastard kind of mine), and other materials, as adjusting fluxes to the blast-furnace, a table of their constituent elements, when prepared for use, will likewise be desirable for the guidance of the smelter; not, be it particularly observed, that a mere knowledge of their elements will be all that a good manager should rest satisfied with; for, unless he also makes himself fully acquainted with the reciprocal action of mineral bodies, but especially of silex, lime, alumine, and magnesia, at the usual temperature of blast-furnaces (say, a temperature generated by the consumption of nine tons of coke in twelve hours, or three barrows per hour), and obtains correct information as to the best proportions of the several elements for forming a clear and colourless glass, without the aid of oxide of iron, it will be in vain for him to expect either good or uniform results, otherwise than as the effects of chance. This is a point which has scarcely ever been attended to in iron smelting, although, upon a due knowledge of which, the whole art of furnace-managing entirely depends; its solution is this—there is a very strong quiescent affinity existing between protoxide of iron and silex, which affinity can only effectually be overcome by bringing the silicated oxide into actual contact (*i. e.*, by fusion) with substances that have a stronger affinity for both the oxide and the silex than that which at the time may hold them in union. In the case in question the lime and alumine on the one hand, and the carbon of the fuel on the other, will, at a due temperature, readily effect the separation by a compound, or double decomposition, as it were; the lime and alumine, by attracting out and uniting with the silex, will instantly become a perfect and fluid glass, and the carbon of the fuel will, from the affinity existing between it and iron, at a high temperature, as instantly decompose the oxide (now left at liberty for its oxygen to enter into new combinations, in consequence of the silex being separated from it) and unite with the metallic iron, so as to produce a carburet, which, from being very fusible, and of great specific gravity, will fall through the glassy cinder into the bottom of the furnace, and be then safely protected from the injurious effects of the blast; under these circumstances, a furnace may be said to work well, and a good and uniform result may safely be depended upon.

There is also another subject to which an ironsmelter will have to direct his particular attention, which is, the cinder produced from the mineral residue of his materials, for this is the index of all the chemical changes which take place in a smelting-furnace, and which changes often occur daily, and often from hour to hour. Now, furnace cinders are of various qualities, from a clear colourless fluid, and perfect glass, indicating a complete separation of the iron from the other materials, to a dense black scowering cinder, or scoria, containing a large portion of oxide of iron, and indicating a considerable waste of material, and, if long continued, bringing down sure destruction upon the furnace.

From the result of numerous analysis of furnace cinder, of all qualities and colours, from the very best kind to the very worst, it appears that, when the proportions of silex, lime, and alumine are to each other as 3, 2, and 1, the cinder will be clear and colourless, and the iron result soft and good, no impediment previously existing in the furnace; but should the earthy residuums consist of four parts silex, two lime, and one alumine, then the cinder will appear of a reddish, or foxy, colour, when drawn out thin, as it comes from the fall of the furnace, and looking through it; such a cinder will indicate a hard iron result, and the furnace (if she previously worked well) will have a tendency to fall still farther off as to quality; and should there be a larger portion of silex in the residuums, it would very soon put the furnace completely out of order, and would finally "gob her up," as it is technically termed, were not a reaction to take place, by the revived iron entangled in the cinder becoming again oxidated by the blast, so as readily to form a reunion with the excess of silex, which compound, acting as a powerful flux upon the imperfectly-fused materials in the crucible, will soon remove the accumulations from the furnace, in the shape of a black scowering cinder, as above-described; the cause of which accumulations being the infusibility of the residual earths, principally the silex in this district, at the existing temperature of the furnace, after the iron has been revived, and consequently separated therefrom. The remedy in this case will be an addition of such materials, or fluxes, as may increase the fusibility of the residuums, or else by augmenting the quantities of lime and alumine, or reducing the silex, until the proportions are—one alumine, two lime, and three silex, or as nearly so as possible—for, in these proportions, those elements readily fuse into a complete and perfect glass, without the aid of protoxide of iron; consequently, in forming his furnace charges, the smelter should refer to his analytical tables, in order to ascertain the quantities of silex and alumine (which are the principal residuums of the mines and fuels of this district of country) in the materials required to yield a ton of pig-iron; and should the alumine amount to one-third the weight of the silex, he will then only have to employ as much limestone as will yield, in caustic lime, twice the amount of alumine; the resulting cinder will then be a colourless compound, readily fusible, at the usual temperature of a blast-furnace, without the aid of protoxide of iron, and the process will be perfect and unchangeable, until one or other of the earths in question be reduced, or augmented, in quantity, so as materially to fall away from the relative proportions above enumerated. Should the alumine in the residuums not amount to one-third the weight of the silex, an adjusting flux, or mixture, should be employed to supply the deficiency—namely, a mine containing an excess of alumine, or else a due proportion of marl, fire-clay, shale, or jack; and if the silex should be deficient in quantity (in which case the cinder will be thick and ropy, although, perhaps, of a good colour, and not flow readily from the furnace), mines, or other materials, yielding an excess of silex, should be employed, until its proportions are to the other residuums as above-stated. The quantity of lime to be employed in the process under consideration will necessarily depend upon the amount of silex and alumine in the mines, fuels, and adjusting fluxes to be operated upon in the furnace.

The composition of furnace mixtures will form the subject of my next communication.

ORIGINAL CORRESPONDENCE.

PRESSURE ENGINES *v.* WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I beg to say that I have had the pleasure of personally knowing Mr. John Budge, of Callington, for many years past, and have had in my possession his valuable tables published in 1825, from that period, called the *Practical Miner's Guide*. These tables have been of great use to me, and I never discovered any incorrectness in the calculations. On pages 86, 87, and 88, is a rule for discovering the power of a water-wheel, with the following example:—

Required the power of a water-wheel, the diameter being 46 feet, the buckets thirty inches long, 12 inches deep, and 6 inches wide, with 1½ inch between each bucket, and the crank 3 feet long?

240 buckets, each containing 78·13 lbs. water = 18,750 ÷ 3 = 6250
46 ÷ 2 = 23 — 3 = 20 ÷ 3 = 6·66 power, of the lever
6250 × 6·66 = ... 41,625 lbs.
Deduct for friction one fifth .... 8,325 „
.... 33,300 lbs.

will draw a 12-inch lift of pumps 113 fathoms nearly, 44-horse power.

By same rule—What duty will 1000 feet of water per minute perform over a water-wheel 50 feet high, crank 5 feet, to work 10-foot stroke in shaft eight strokes per minute, or 125 feet water for each revolution?

125 ÷ 2 = 6·25 — 12·5 = 50
Deduct one-third .... 16⅔—33⅓
Deduct friction one-fifth .... 6⅔—26⅔, which comes to the following result, viz:—125 feet over a 50-foot wheel will raise 26⅔ feet same height 50 feet. One 100-foot, or two 50-foot wheels, will raise 53⅓ feet 50 feet high.

A 50-foot pressure—125 feet per stroke
Deduct 30⅓ feet .... 75—50
Deduct one-fifth .... 10—40 feet water fifty feet high.
A 100-foot pressure—125 feet per stroke
Deduct 30⅓ feet .... 37½—87½
Deduct one-fifth .... 17½—70 feet 100 feet high, or 140 feet fifty feet high.—The following examples prove:—
1st.—As 26⅔ : 100 :: 40 : *Answer* 150, or 50 per cent. superior.
2d.—As 53⅓ : 100 :: 140 : „ 262, or 162 „ „

Allowing Mr. Budge to be right in his wheel calculations, and that my pressure calculations are not overrated, then you will find that a 50-foot pressure is 50 per cent. better than a 50-foot wheel, and a 100-foot pressure is 162 per cent. better than a 100-foot wheel.

Carnarvon, March 5. P. V. W.

THE CONSTRUCTION AND APPLICATION OF WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your correspondent, "N. V.," Holywell, seems to have overlooked Messrs. Whitelaw and Stirrat's patent hydraulic machines, of which much has been said and written of late. "N. V." should state the use intended to be made of his 50 foot fall, and also the situation, on which much depends in erecting water-wheels and pressure-engines; if for pumping, and the situation be favourable for a pressure-engine, this may be attended with the least friction and expense; if a rotary engine be required, and the situation be favourable for a wheel, then the wheel is best; if a 50-foot wheel be applied to pump, there are many advantages in using north-gear. DIXON.

Bangor, March 3.

THE CONSTRUCTION AND APPLICATION OF WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Your paper of the 26th of February I have not seen till to-day. I am sorry my writing should have been so unintelligible as to have led to any error. I believe, however, it is so far intelligible to practical men, that they will have no difficulty in understanding it, or answering the question I have proposed. The wheel I mentioned in this county making thirty revolutions per minute is twelve feet diameter; it lifts a hammer with a cam ring under the point. In comparing the power of a water-wheel with a pressure-engine, I have said the crank travels three times through the length of stroke, and is effective twice: I should have said with one crank, for with two cranks, as proposed by your Bickleigh correspondent, the wheel is effective through the whole revolution. The one I mentioned in this county working with teeth and pinion has the cranks at right angles. N. V.

Holywell, Flintshire, March 2.

WATER-WHEELS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Among the numerous readers of your valuable paper, perhaps some one of them will devote five minutes of their time to assist me in the following difficulty:—I am entrusted with the management of a lead mine, which has not been worked for twenty years, and, being limited to expense, have to contend with the following difficulties in the best manner I can. The old work is eighteen fathoms deep, and it is now proposed to sink down the shaft ten fathoms deeper; the feed of water is great, and I have only the water-wheel, belonging to the old work, to clear the water; this wheel is cast-iron, 25 ft. diameter and 6 ft. at the breast, and is well supplied with water; the leet is brought about six feet over the highest part of the wheel. My fear is that this power is scarcely sufficient to clear the water, and I am desirous to find out the best sized cylinder for the pumps to do this work best. I propose dividing her work into two lifts—the upper lift to be from the bottom of the old work—viz., thirty-six yards, and another lift to sink the work twenty yards. Some of the old workmen say that the working-piece of the pump before used was eighteen inches diameter. I shall feel much obliged to any practical gentleman informing me what diameter he would recommend me to use in the working-piece to each lift with this power, and any other hint he may be able to suggest, by a reply in your valuable paper. A CAPTAIN.

Cardigan, March 9.

PRESENT STATE OF THE IRON TRADE.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Having seen a statement in your paper of the 5th inst. of the different blast-furnaces in England and Scotland, and at same time requesting information of any errors that may have been stated, I, therefore, beg to correct it, as to my works; you have it thus—

Proprietors.	Name of Works.	No. of fur.	Fur. in blast
W. Young	Omoa	1	1

and it should be as under, viz.:—

Robert Stewart	Omoa	3	1

the works having been purchased by me upwards of two years ago. Of the two furnaces out of blast, one is quite ready, and would have been blowing, had it not been for the arrangement as to reduction of make, and the other is a good furnace, although out of repair. R. STEWART.

Omoa Iron Works, Glasgow, March 9.

ON THE NATURE AND QUALITIES OF SULPHUR.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I am happy in observing that you still devote attention to the interests of the proprietors of mines yielding sulphur ores. I look upon the subject as one of great national importance, and offering a fine field for speculation. I fear I may be considered presumptuous in calling in question the accuracy of any statement which may appear as a leading article in your deservedly-esteemed Journal, but as I flatter myself I am well acquainted with sulphur, both as an article of commerce and as a chemical agent, I take the liberty of stating that you have estimated the cost of Sicilian sulphur imported into this country very much too high in your leading article of the 19th ult.—you there state it at 8*l.* 8*s.* per ton. I consider the cost in Sicily much too high at 4*l.* per ton; and I think the export duty is only 1*l.* 10*s.*, instead of 1*l.* 15*s.* With the present superabundance of shipping, I should say, too, that 1*l.* 15*s.* was above an average freight—say 1*l.* 10*s.* In making any estimate of the cost of sulphur, we must not rely upon the permanency of any impost which his Majesty the King of Sicily may be disposed to levy; it is better, therefore, to calculate upon a duty free export from Sicily. About fifteen years since I bought a large parcel of Sicilian sulphur, duty paid, in England at 4*l.* 10*s.* per ton. I believe it has not been so low since, and it might have been then sold at a loss. I have since paid as high as 16*l.* per ton.

I am satisfied that the United Kingdom may be made independent of foreign countries for its supply of sulphur, its minerals containing a superabundance—in fact, more sulphur is wasted annually than would be sufficient to supply all the wants of our manufacturers. The manufacture of sulphur would be an excellent speculation, even taking the price at a minimum—say 4*l.* 10*s.*—apportioned thus:—Price in Sicily, 2*l.* 5*s.*; freight, 1*l.* 10*s.*; duty in England, 10*s.*; charges, 5*s.* The greatest consumption of sulphur is for the manufacture of sulphuric acid, for bleaching compositions, and the decomposition of salt for soda and alkali. Sulphuric acid may certainly be prepared direct from the ores in their natural state, but it is attended with much additional expense, from the extra bulk of materials to be moved about, and the impossibility of obtaining the whole, nor anything like, of the real per centage of sulphur which the ores contain. Sulphur in a state of the greatest purity can be obtained from sulphur ore, mundic, or pyrites, by a cheap and easy process, which being carried on at the mines all extra charges would be saved. Were not the copper smelters such out-and-out Conservatives, this process might be conducted with great advantage in connection with copper works, when an adequate supply of sulphur could be procured from that quarter. The waste of sulphur from copper works occasions an immensity of damage, as any one can bear witness to who has travelled from Neath to Swansea. It certainly used to grieve me much at the time this country was on the verge of a war with the kingdom of the Two Sicilies, to reflect that such an amount of damage should be caused by the waste and destruction of so large a quantity of the very article (sulphur) as would supply all the wants of our manufacturers, about which the Governments of the two countries were embroiled in such an angry dispute. At present a quantity of sulphur is required in smelting copper. The present process is termed by scientific men "a barbarous process," but it really is not when theoretically examined into. The different ores from which copper is smelted are very numerous, and the combinations of the copper, and the substances with which it is associated, are as various. There is no one flux that has as yet been found to act so generally, or act so universally, in decomposing these various combinations, and amalgamating such a diversity of substances into one common mass, copper slag, as proto-sulphuret of iron. A large quantity of this is used as the flux, and is prepared by calcining a large proportion of poor sulphury copper ore, by which a portion of sulphur is dissipated, and the iron (which constitutes a considerable item in such ores) is partially oxidised. When a general mixture of the ores is melted with this calcined ore, the proto-sulphuret of iron fuses all the various substances, and deoxidises the copper which settles to the bottom. The impurities, or slag, being then skimmed off, the copper is left in an impure state, combined with a portion of sulphur, which it is difficult to get rid of, but is effected by an alternating series of calcinations and fusions, requiring about six distinct operations. In the calcining process the surfaces of the pieces of metal become oxidised; in the fusions the oxygen of the oxidised surfaces combines with the sulphur of the interiors, forming sulphurous acid, which is expelled by the high temperature, and thus by sufficient repetitions of the processes the copper becomes pure enough for refining, or toughening, as the workmen term it. Such appears to me to be the theory of the present process of smelting copper, which may be gradually improved, and, indeed, ultimately so modified, as to be accomplished without the use of sulphur. If a company could be formed to commence the manufacture of sulphur, a quantity of highly oxidised metals would be prepared. I have long entertained the idea, that if a portion of such oxidised ore were to be mixed with fresh sulphury ore, and a general mixture of the ores to be smelted, these being all fused together, the same results would be obtained as if the whole of the sulphury ores had been calcined—thus offering to the manufacturer of sulphur a market for his refuse, and saving the copper smelter the entire process of calcination. This is the first improvement in copper smelting which I should attempt; at the same time, I confidently state my con-

whereas that an alternating process of oxidation and deoxidation may be applied to the melted copper in the furnace, that it may be drawn off from the furnace sufficiently pure by a single fusion to be fit for the refinery. While upon the subject I will state further, that I could devise a flux quite as effective, and not so expensive, or injurious in its use, as a compound of sulphur and iron. I remain, Sir, your's, &c.,

T. H. LEIGHTON.

Llanelly, March 8.

[Some remarks on this communication will be found in another column.]

ON THE COMBUSTION AND CHEMICAL PROPERTIES OF COAL.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—*Festina lente* is a very good maxim when not carried to an extreme. I fear, however, that the progress of the discussion on the properties of coal must appear rather too slow to most persons, who, like myself, might have expected it would have been brought to a close before this time. Mr. Williams, in his last letter, acknowledges himself to be in arrear, and I will, therefore, just remind him how the subject at present stands. My letters of the 20th January, "On the Combustion of Smoke," and of 9th February, "On the Use of Hot Air in Furnaces," are yet unanswered, and we have had no more corrections of my paper, "On the Chemical Properties of Coal," since the 25th December last. I should be sorry, however, to hurry Mr. Williams, if he finds any difficulty in bringing the artillery of his arguments to bear upon these subjects, and I will, therefore, in the meantime, make a few observations on his letter in your Journal of the 5th instant.

Respecting the disputed passage in Mr. Williams's letter of 1st January, as to the same quantity of air being required at all periods of the combustion of the coal, we agree, it appears, as to the expressions used, and only differ in the meaning which they are supposed to convey. Now, although Mr. Williams must, of course, know what he really intended to express—and I am bound to take his present reading of the passage to be what he originally intended—still I maintain that the passage did not express the meaning he attributes to it. The statement, that "there is no such time, and there are no such circumstances," when "a regulating air admission valve would be necessary," was evidence, I conceived, that Mr. Williams considered there ought to be an equal volume of air admitted at all stages of the combustion; for, if this were not the case, a regulating air admission valve would certainly be required. But Mr. Williams denies there is any such time, or any such circumstances, as would require a diminished influx of air; and, therefore, what I stated must be the necessary consequence—viz., that he considers "the same quantity of air is required to consume the gaseous products of coal at all periods of combustion." The new reading of this passage, that there is no time when there is no demand for a supply of air to the burning fuel, is unquestionably correct as to the fact. I am much obliged to Mr. Williams for his invitation to inspect his experiments at Liverpool, but it is unnecessary for me to do so, because I am perfectly acquainted with the fact which he states. Indeed, I should have conceived no person at all acquainted with the theory or the practice of combustion could be ignorant of the fact, that a considerable supply of air is at all times required for effecting perfect combustion of every description of fuel. Mr. Williams states this is such a common oversight, that it appears almost natural; but I can only say, I never met with any instance where such an oversight existed, and which could only proceed from the most perfect ignorance of the subject. But, what I asserted (and what, also, Mr. Williams appears now to assert) was, that less air was required for the combustion of the coal after the hydro-carburets were evolved than was required for the combustion of these hydro-carburets; and, if there be no regulating valve to the furnace, I do not see how this condition can be fulfilled, although I quite agree that there are practical difficulties in the application of such valves, which are not easy to overcome.

As regards Mr. Williams's remarks, that I have wholly omitted any notice of the distinction which he draws between the use of hot air to coke and anthracite, and its application to combustible gases, I have to observe, in answer to his inquiry, that the omission was intentional, and not accidental. My views of the advantages of hot air to the combustion of anthracite have been already fully stated in my paper "On the Constitution of Coal;" and, as Mr. Williams's views coincided with mine, I conceived there was nothing required to be said on this subject. But I beg to set him right on one subject upon which he has fallen into an error. He considers I have, in all my arguments, "confounded two processes, so essentially different as the combustion of solid and gaseous bodies." Now, I beg to assure him, I have not done so. He will not find any one single instance where I have confounded these processes, nor will he find, as he asserts, that Sir H. Davy's experiments will bear out his arguments, and disprove mine, respecting the use of hot air. Such statements, without even an attempt at proving them, will not, I think, be considered as a very satisfactory way of conducting a discussion of this sort. This much, however, I am ready to grant him—that, whether the air or the gas be heated, is a matter of but little consequence, so long as the mean temperature of the air and the gas, when mixed, shall be sufficiently high for the mixture to enter into combustion. But, as the air constitutes the larger volume, it is certain that the gas must be greatly lowered in temperature by the admission of so large a body of cold air as is required for the combustion of the gas; and, frequently, this is the case to a very injurious extent.

CHARLES HOOD.

Earl street, March 7.

"DOINGS" IN THE NORTH.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—You have taken an interest in the Durham County Coal Company, and we are much indebted to you for your independent and valuable assistance; it is to be hoped that we have now not only "scotched the snake," but "killed it," and that what you may hereafter have to chronicle, respecting this company, will be of dividends, premiums, and bonuses. There is one matter, however, to which I wish to draw your attention, as a preliminary to these halcyon days, and that is, the suit which the company are engaged in with the Stockton and Darlington Railway Company. Be it first understood that the railway company is mainly under the direction of Quakers; it is not needful to enter into the merits of the case between the two companies, which are well understood—suffice it to say, that the railway company has been beaten in every court, and that the unanimous decision of the Judges is against them; but, in spite of this, holding, as the fruit of their opposition, about 10,000*l.* of the funds of the Durham Coal Company, they seem determined to carry the case to the House of Lords, the sinews of war being furnished by the coal company; whilst, however, the executive of the railway company follow such courses, there are not wanting proprietors—upright men—who shrink from their proceedings, and I could name one venerable man, who, spurning the temporary shelter which the law's delay affords, has entered his solemn protest against the attempt longer to withhold from our company that which the law has awarded to it. It is said that corporate bodies have corporate consciences, and, whilst I freely allow that the directors of this railway are individually honourable men, I must say that their official conduct is deserving of the severest reprehension. Let them beware, lest the public indignation which has overtaken the originators of the company do not fall upon those who, by every obstruction which the law affords, are endeavouring to delay, and defeat, the claims of justice. The gentleman who has protested against this act of the railway company is himself a banker, and was once nearly the largest proprietor in the railway, and still holds several shares; his judgment is, therefore, a disinterested one, and he calls upon the railway company to disgorge their unlawful gains, as it is plainly foreseen they must one day do, and their further opposition can only be intended to harass and annoy the coal company, and to put off the evil day to as distant a period as possible. There are, no doubt, quibbles and subterfuges by which these gentlemen may appease their consciences, but that which they would be ashamed to do individually, it is no less shameful to do incorporately; behind the shield of a public company, they may hope to escape a personal challenge, but the time may come when it may be needful to lay upon each of them personally the full amount of his own responsibility in this matter.

CHARLES SMITHSON.

Durham place, March 10.

[This company seems to have been considered a fair "butt" for all to shoot at. The change in its affairs, noticed by our correspondent, is highly gratifying, and we doubt not, but that, in the railway case, "right will eventually come uppermost," and that the House of Lords, by their judgment, will, in according the same, on the merits of the case, as the seconds do their decision in the appeal of the West Cork Company. We certainly are not surprised that men are bold enough to try the House of Lords on a question of appeal, even though the decision of all the Judges in the land should have been unanimously given against them. We have heard of lawyers and pledges, when raised to the peerage, having reversed their own decrees.]

DESTRUCTION OF BUCKET LEATHERS IN PUMPING ENGINES.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—As none of your able correspondents have suggested a remedy to "A Subscriber" (in Journal No. 340), for the prevention of the rapid destruction of bucket leathers in pumping-engines, where the water, as in some coal mines, causes the leather to decay in a week or ten days, I think the most charitable construction we can put on the silence observed on this subject, is, that no remedy has been discovered or become known. I would, therefore, humbly beg to suggest to "A Subscriber," to convert his drawing pumps into forcing pumps, and no bucket leather will be required. If not trespassing too much on your valuable columns, I may as well state my own experience in similar circumstances as that alluded to above. In a coal mine, where I happened to be employed a few years ago, at a new winning, the engine-shaft was only about thirty fathoms deep, but the quantity of water was excessive; by hard work, and close attention, the shaft was sunk with one set of pump trees, 10-inch working barrel, but, as soon as the coal was struck, a second set had to be put down, and, before much ground was opened, a third set, all one size, 11-inch pipes and 10-inch barrel, all working side by side, pumping from bottom to surface. Now, if any two out of the three sets could have been kept in perfect order, and in constant work, they would have kept the pit dry, but, from the rapid destruction of bucket leathers, this was found to be impossible; two men had always to be in readiness to go down to change buckets, as soon as any of them should show defect, which, in general, was two or three times a-week; and, while change was making in one set, all three should be idle, and water rising in the shaft, so that the delays, mens' hire, and cost of leather, became intolerable. As a remedy, a "plunger" (a forcing pump) was put down, and, from henceforth, all went on smoothly. Clacks, mounted with double leathers, "hake-mouth" fashion (which is far preferable to "butterfly" mounting) did not require to be changed for months. In consequence, the working of the colliery soon became profitable, which it never would by any other mode of pumping, owing to delays and extra costs. I have sometimes thought that the metallic miners of the west as far exceed the colliers of the north, in the better arrangement of their pumping-engines and pump work, as the latter do the former in the superior ventilation of their mines. It might be well if they would be advised to take a lesson from each other, but this suggestion, I fear, neither will take in very good part; for, in whatever locality one goes into, each and all think (and will tell you) themselves the pink of perfection in everything—so that, as was lately, and truly said, by an intelligent writer, in your Journal—"Prejudice tends to render the manager in one district unwilling to receive instruction from one of a different practice;" and, whether you go north or go west, we have all got the same song—"there is nae place like hame," "there is no place like whoam."

A WORKMAN.

March 8.

[We concur in the wish of our correspondent, that parties would adopt the principle of benefitting themselves by the experience of their neighbours, and, by the same rule, allow their neighbours the advantage of their own practical observation. "Give and take" is a motto which might be adopted, as a principle of action, by many others than "A Workman." We see no reason why any jealousy or rival feeling should exist on the part of practical, or any other body of men; the only rivalry should be—that of proving who most can benefit their fellow-men, by the promulgation of knowledge.]

PUBLIC UNDERTAKINGS AND PUBLIC CHARACTERS.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—May we not join in the cry of the dissentients from the Government, and exclaim "What will become of the country?" for surely it is a question which may be justly asked, when scarcely a week passes but we find some one of the early patrons of philanthropic objects, or grand undertakings, projected in this famous city, become, as it were, "marked men," or declared unable or unworthy to proceed in the good cause of benevolence or of nationality. Mr. W. Millett Thomas, and his various suggestions for benefitting our mining districts, and, in so doing (though some evil-minded persons doubted their possibility), making the fortunes of his associates, are now almost forgotten;—and so, indeed, were those of another misjudged gentleman, Mr. Joseph Pike, and perhaps might have remained so, but for the officiousness of a set of discontents, calling themselves the West Cork Mining Company—who, I am informed, presume to question the legality, or propriety, of the decision of the first common and equity law lords in this or any other country, because, forsooth, it proclaims his conduct as fair and honest!—but let that pass. Scarcely has that worthy man, Alderman Thos. Wood, had time to recover his equanimity from the violent attacks which he has sustained, for an endeavour to benefit the poor of Dublin and elsewhere, by enabling them to procure cheap coals, &c.—(and what, Sir, may I ask, is there in modern history to equal his forbearance, while supposed by his slanderous persecutors to be smarting from the provoking manner in which his truly charitable intentions had been misconstrued!)—when we find his friend, Mr. Thomas Lamie Murray, subject to similar indignities, and ejected from the direction of the Irish Waste Land Improvement Company, of which he was one of the earliest patrons (and to whom, indeed, we are, perhaps, more indebted than to Mr. Alderman Thomas Wood, for, as I am informed, he was the projector of several of the most useful, if not the most prosperous, undertakings of the day—among which may be named the National Loan Fund Assurance Company, the Languin Iron and Coal Company, the Metropolitan Patent Wood Paving Company, &c.) Again, we have Mr. Daniel O'Connell, too, held up to the world as a *defaulter* in that same undertaking, which, it is well known he has laboured so hard and so well to serve, because, in so doing he was furthering the dearest object of his heart, that of benefitting his beloved country and her distressed population; why, the blood of every Irishman must rise, and his indignation be excessive, at the illiberal reflections cast upon that patriotic man's conduct—but to whom, as of course he is well able, I leave the justification of his character, and the annihilation of his slanderers. And last, though not least, it grieves me farther to notice, that at the meeting of the Thames Tunnel Company, on Tuesday last, the directors announced that that spirited gentleman, Mr. Frederick Boucher—even he, Sir, who has done so much for our colonies, in the (as was thought) successful establishment of that, among other, great schemes, the British and Australasian Bank—was disqualified for the appointment of auditor. Oh! Mr. Editor, when we find the best interests of so many good and righteous men sacrificed to the petty jealousies and revengeful malevolence of a parcel of idle marauders, for the sake, as I believe, of a little temporary popularity, is it not time to ask—"What will become of the country?"

A FRIEND TO OUR BENEFACTORS.

Throgmorton st., March 2.

[Our correspondent surely has a disposition "to poke his fun" at our readers and ourselves, in signing himself "A Friend to our Benefactors," if that he comprehends in the list the virtuous William Millett Thomas, the innocent Joseph Pike, the immaculate Alderman Thomas Wood, the unexceptionable Mr. Thomas Lamie Murray, the defaulter Daniel O'Connell, Esq., Lord Mayor of Dublin, or that "spirited gentleman," yclept Mister Frederick Boucher. All these worthies have in their time gulled the public, and are each, in their turn, obtaining the rewards they so justly merit. Each, and all of them, are discarded and rejected from all honest and decent society—if we may except Mr. Alderman Thomas Wood—who, by virtue of his aldermanic gown, is qualified to take his seat on the same bench with Aldermen Pirie, Thompson, Lucas, Copeland, and other members of the Court, and who awaits with patience Michaelmas day, when the voice of the Livery of London will pronounce whether in their opinion the worthy legal alderman possesses more moral principle or honest virtue than the worthy ex-legal Alderman Harmer. Well may our correspondent ask, with "so many good and righteous men," "What will become of the country?" We re-echo his words, "What will become of the country?" to which the only reply is, an appeal to the country's laws, and the expression of honest feeling on the part of the community at large, whenever the opportunity presents itself to record their opinions.]

CARBOLEINE.—A patent has recently been taken out for a new description of fuel under the above title, which is thus produced:—A quantity of coal, charcoal, coke, brown coals, or peat coals, being reduced to a fine powder, is put into wooden tubs and mixed with oil; two and a half parts of water, to one of clay or loam, are then added, and the mass worked into cakes by hand or machinery; these cakes being afterwards gradually dried, by the application of fire-heat, become nearly as hard as stone, and in burning are said to give out more heat than any other known combustible. Should a fuel capable of producing a still more intense heat be required, oil and fluid tar are combined with powdered coke and coals; the proportions of the ingredients for three qualities of carboleine are as follows:—1. Twenty-four parts coal, six or seven of clay-water, one of oil, and one of bitumen. 2. Twenty four parts coal, six or seven of clay-water, and two of oil. 3. Forty-four coal, thirty-six of clay-water, and four of oil.

GEOLOGICAL SOCIETY OF LONDON.

At the meeting of this society, on the 19th January (Mr. Murchison, President, in the chair), a paper "On the Recession of the Falls of Niagara," by Mr. Lyell, was read.

Professor Eaton published, in 1824, a correct section of the rocks between Lewistown and the Falls of Niagara; and in 1829, 1831, and 1835, Mr. Bakewell, Mr. De la Beche, and Mr. D. Rogers, laid before the public accounts of the phenomena of the Falls, and the physical structure and geology of the district. In the *Report of the Geology of Western New York*, for 18[illegible], Mr. Conrad first declared his opinion, that all the formations of that country belonged to the Silurian series; but Mr. Lyell says, that the true geological succession of the rocks between Lewistown and the Falls was never well understood, until Mr. James Hall, the States geologist, published his report for 1838. After these allusions to previous labours, Mr. Lyell proceeded to give a brief account of the strata composing the Niagara district, derived chiefly either from the reports of Mr. Hall, or from information obtained from that gentleman, while travelling with him during the autumn of 18[illegible]. The strata between Lakes Erie and Ontario are considered to belong to the middle and lower portions of the English Silurian system, and are divided into five principal formations—viz., 1, the Helderberg limestone; 2, the Onondago salt group; 3, the Niagara group; 4, the Protean group; and 5, the Ontario group. The first, or newest, constituting the country adjoining to Lake Erie, and called the Helderberg limestone, is considered, on account of its organic contents, to represent the Wenlock rocks of Mr. Murchison's Silurian system; and the correctness of this conclusion Mr. Lyell has verified by a personal examination of the strata, from the coal field of Pennsylvania to the group in question, the intermediate formations containing organic remains which agree with those found in the Devonian system and Ludlow rocks of England. In this part of the state of New York, and still further west, in Upper Canada, the Helderberg series is only fifty feet thick, but in Schoharie, 300 miles to the eastward, it attains a thickness of 300 feet. 2. The Onondago salt group differs essentially from any member of the British Silurian system, consisting, with the exception of a stratum of limestone at the top, of red and green marls, with beds of gypsum, which are undistinguishable from the new red marls of England. The deposit is also non-fossiliferous. No rock salt has yet been found in the group, but lime springs are of frequent occurrence. On the line of the Niagara, the strata have been denuded, and are much concealed by overlying drift, but the thickness is estimated at not less than 800 feet, and Mr. Hall conceives, that, in some parts of New York, it is full 1000 feet. 3. The Niagara group first appears on approaching the rapids above the great cataract. It consists in the upper part of the Niagara or Lockport limestone, 120 feet thick, and in the lower of the Niagara or Rochester shale, which is eighty feet thick, and both contain fossils identical with those of the Wenlock series of England, but associated with others peculiar to North America. The limestone constitutes the whole of the platform from the rapids to the escarpment at Lewistown, where its thickness is only thirty feet, and it rests persistently on the Niagara or Rochester shale, which maintains throughout the same vertical dimensions. 4. The Protean group, which crops out at the base of the Falls, owes its name to its variable and heterogeneous composition. On the Niagara it consists of twenty five feet of hard limestone, resting upon about four feet of shale; but at Rochester, in the Genesee River, it is better developed, and includes a bed of dark shale, with graptolites, and another of limestone, full of *Pentamerus oblongus* and *P. lævis*, considered by Mr. Conrad to be one species. 5. About a mile below the Falls the Ontario group begins to rise from beneath the Protean, and extends to the escarpment at Queenstown, or Lewistown, where its thickness is 200 feet, but to this dimension must be added 150 feet of inferior beds, composing the district between the escarpment and Lake Ontario. The group consists, in descending order, of seventy feet of red marl, with beds of hard sandstone in the upper part, twenty-five feet of hard white quartzose sandstone, and 250 feet of red marl and sandstone. Mr. Lyell is of opinion, from a comparison of English Caradoc and Llandeilo fossils, with those found in the groups 4 and 5, that the Protean and Ontario series represent the lower Silurian rocks of Great Britain. The dip of the whole of these groups is at a small angle to the south, and as their strike has been traced 150 miles to the eastward, and for a greater distance to the westward, the sections along the banks of the Niagara afford a key to the structure of a large portion of the State of New York. Beneath the five groups just described, the lowest of which extends to Lake Ontario, occurs another called the Mohawk group, exposed on the Canada side of Lake Ontario, and Mr. Lyell is of opinion that it belongs to a series of beds older than the lower Silurian rocks of England. The author then enters upon some details respecting the geographical distribution of the formations, and the physical features of the country, particularly those presented by the two platforms, composed of the Helderberg and the Niagara limestones, and the escarpments at their terminations north of Buffalo, and at Queenstown. The distance from the point where the Niagara flows out of Lake Erie to the Falls is sixteen miles, from the Falls to the Queenstown escarpment is seven miles, and thence to Lake Ontario is also about seven miles. For the first fifteen and a half miles, or from Lake Erie to the commencement of the rapids, the descent of the river does not exceed fifteen feet, but in the next half mile, or to the edge of the cataract, it is forty-five feet; the perpendicular height of the Falls is 164 feet, and from their base to Queenstown, the descent of the river is about 100 feet, but thence to Lake Ontario not more than four feet. These measurements, Mr. Lyell says, are of importance in speculating on the past or future recession of the Falls. If the cataract were ever at Queenstown, its height must have been then twice what it is now, the vertical measurements of the escarpment being there 330 feet, and the difference is chiefly due to the gentle southern inclination of the beds, and the change in the level of the river between the Falls and Queenstown. With respect to the origin of this escarpment, the author shows that it cannot be assigned to a fault, the strata composing it, and extending from its base, preserving the same relative position as at Lockport or Rochester, and he is of opinion, that it is due entirely to denudation, at a period when the sea extended to its foot. He is also convinced, that the Helderberg escarpment was likewise formed by the action of the sea. Mr. Lyell then enters upon the great question, whether the ravine through which the Niagara flows has been cut by the river, or was excavated by the same agent which produced the escarpment. His own observations have induced him to conclude that it has been formed by the river, and that the drainage of Lake Erie was anciently affected by a body of water flowing along a shallow valley which occupied the present line of the ravine, and agreed in character with the valley or depression, through which the Niagara now runs between Lake Erie and the Falls. Mr. Lyell assigns the following reasons for his conclusion:—1st. The breadth of the ravine being at the top only from 400 to 600 yards, and at the bottom from 200 to 400, between Queenstown and the Whirlpool. 2d. From the bed of the river being everywhere cut down to the regular strata. 3d. From the fact that the Falls are now slowly receding. 4th. From the existence of the remains of a freshwater deposit on Goat Island, and in a depression at the top of the cliffs, half a mile lower down on both sides of the river, the origin of which accumulation he assigns to the body of water which flowed along the shallow valley beforementioned. The objection which has been advanced against the inference that the river has cut back the ravine, and founded upon an indentation in the cliff, called the "Devils' Hole," between the Whirlpool and Queenstown, Mr. Lyell is of opinion is not valid, as he conceives that the rivulet which now flows down the notch, aided by atmospheric agency, would be able to form the hollow. He alludes likewise to another indentation, noticed by himself and Mr. Hall, on the Canada side of the river, and near the whirlpool, the characters of which had apparently escaped previous observers.

Mr. Lyell does not attach much importance to the precise numerical calculations respecting the recession of the Falls during the last half century, but he notices the great changes which took place in 1818 and 1828, and others which have occurred within the memory of persons residing in the district; he mentions likewise a work published by a French missionary, Father Hennepin, containing a view of the Falls in 1678, and which, in addition to the two existing cascades, represents a third on the Canada side, crossing the Horse-shoe cataract at right angles. This cascade is also alluded to by the Swedish botanist Kalm, who published an account of the Falls in 1751, but at that time it did not exist. Mr. Lyell then details the characters of the freshwater deposits on Goat Island and at the top of the cliff, presuming that it had been known previous to Mr. Bakewell's account of the Falls, and that Mr. Hall has described it in his report for 1838. The deposit consists of marl, gravel, and sand, containing nine species of fluviatile shells, all of which still inhabit the Niagara. At the south-west extremity of Goat Island it is twenty four feet thick. On the right bank of the Niagara, opposite the Island, a terrace twelve feet in altitude has been excavated in this accumulation, which is there also about twenty-four feet in depth; and in digging a mill-dam some years since, a tooth of the *Mastodon Americanus* was found associated with the same species of fluviatile shells; a similar terrace is distinctly seen on the Canada side of the river, and at about the same level, but its characters have not been investigated. These deposits demonstrate, Mr. Lyell says, the former position of the river at a level corresponding to that of the present summit of the cataracts, and for half a mile below the present Falls; but it also proves that there must have been a barrier further down to have produced that tranquil condition of the water necessary for the inhabiting testacea; and he is of opinion that it existed about the position of the whirlpool, or three miles below the present Falls. If this be admitted, and if the river has cut back its way three miles, we may be prepared to admit that the still narrower ravine below the whirlpool was produced by the same means; and he adds, if the waters continue to cut their way back, the bed of the river above the Falls will be partially laid dry, and the sediment now accumulating will exhibit features similar to those of the Goat Island deposit. Assuming that the Falls were once at Queenstown, Mr. Lyell dwells upon the differences which must have occurred in the rate of retrocession, in

...ance of the changes in the nature of the strata cut through, especially of those which formed the bases of the cliffs; and he adverts to the variations which will take place in future ages from similar causes; but he remarks that all predictions respecting the Falls may be falsified, by the demands which may be made upon Lake Erie, by the construction of canals and other ... works, and by the felling of the forests.

INSTITUTION OF CIVIL ENGINEERS.

March 8.—The President in the chair.

After a renewal of the discussion upon the construction of the South-Eastern Railway, a paper was read from Mr. Timperley, "describing the mode of Kyanising the Timber Sleepers of the Hull and Selby Railway." It gave the practical details of the construction of the apparatus, and of the process of Kyanising timber by making a partial vacuum in close tanks wherein the sleepers were piled; the solution of corrosive sublimate of mercury being then admitted, a pressure of 100 lbs. per square inch was applied, and the mercury was found to have penetrated to the heart; ⅛ lb. of corrosive sublimate sufficed to Kyanise one load of wood; about 337,000 cubic feet were so prepared for the railway, at a cost of about 5d. per cubic foot. Detailed drawings of the apparatus were exhibited. An interesting correspondence between Mr. Lynde (one of the assistant engineers on the line) and Mr. James Simpson detailed the various tests used for ascertaining the amount of saturation which had been arrived at by the various processes, and in an animated discussion the question was fully argued. It would appear that either time or perfect mechanical exhaustion of the fluids and air from the capillary tubes was essential for a good result—that with dry timber the process was successful, but with wet timber it was very doubtful.

PROCEEDINGS OF PUBLIC COMPANIES.

LONDON AND CROYDON RAILWAY.

The half-yearly meeting of the proprietors of this company was held at the London Tavern, on Thursday, the 10th inst.

W. A. Wilkinson, Esq., in the chair.

From the report it appeared that through the repeated land slips on the line the traffic had been greatly and seriously interrupted; notwithstanding, the traffic for the last half-year, with the toll received from the Brighton Company (5150l. 14s. 1d.), sufficed to pay the ordinary expenses of the railway, the interest on borrowed capital, and left an accumulated sum (with a former balance) of 11,125l. 14s. 7d., to be divided amongst the proprietors. In consequence of these unforeseen occurrences, a further capital would be required, but not for several months. The directors had concluded an arrangement with the South-Eastern Company for the joint working and management of their locomotive power, the cost being to each company in proportion to the use thereof. The total capital received to the 31st January, 1842, was [illegible] 10s. 1d., and the total payments 637,975l. 10s. 2d. The coaching account for the half-year (214,833 passengers) was 14,174l. 19s.; the other receipts made a total of 10,332l. 13s. 11d., which, after the expenses, left a balance of 1073l. 17s. 6d. to add to the accumulated fund. The toll paid to the Greenwich Company was 1029l. 10s. 10d., and the company's payments towards the joint station already amounted to 48,149l. 19s. 2d.—After some conversation the report was adopted.—Mr. Levy thought that, as they were to be called upon in a few months for more capital, it would be better not to divide the 11,000l.; but Mr. Parr thought the contrary, and proposed that a dividend of 6s. 9d. per share be paid out of it, which was seconded by Mr. [illegible], and carried by a large majority.—The Chairman then said that a proposal had been made from the Brighton Company to take their railway, allowing them 5 per cent. per annum on the sum expended; and also that they (the Croydon directors) had proposed to the Greenwich Company 6000l. per annum in lieu of the increased toll of 4½d., but it was declined.—After the correspondence had been read, and two directors chosen, a very flattering vote of thanks was passed to the directors, and the meeting separated.

WEST LONDON RAILWAY.

The half-yearly general meeting of the proprietors of this company was held at the office, 11, Abchurch-lane, on Thursday, the 10th inst., when a report was submitted, which stated that nothing new had occurred in the prospects of the company. After a long discussion as to the best means of discharging the liabilities of the company, a resolution was carried, requiring the directors to call a meeting of the creditors of the company, and to make some arrangement with them for the ultimate payment of their claims, and that the meeting be adjourned until the 7th of April, when a report of the proceedings of the directors will be laid before the proprietors.

It appeared from the statement of accounts submitted to the meeting, that the receipts had amounted to 121,843l. 16s. 4d., and the expenditure to [illegible] 10s. 7d.—leaving a balance in hand of 230l. 6s. 7d.

BRANDLING JUNCTION RAILWAY.

The half-yearly meeting of this company was held on Friday, the 4th inst., at which a very numerous and respectable body of shareholders was present. The directors' report stated that a diminution of the receipts for passengers, for the past half-year, had taken place, amounting to 2032l. 16s. 2d., as compared with the corresponding period of the previous year. This they attribute to the general depression of trade, which has been peculiarly felt in Sunderland; when trade assumes its wonted energy, this part of the company's revenue will, it is trusted, "fully attain, if not exceed, its former amount." On the other hand, an increase of 2456l. 7s. 2d. has accrued, for the period beforementioned, upon the carriage of coals. The gross receipts for passengers, coals, goods, &c., for the half-year, were 21,715l. 8s. 9d., less 10,793l. 0s. 4d. for charges and interest—leaving a balance gained of [illegible] 8s. 5d., which, with 580l. 16s. 9d. from the former account, makes [illegible] 5s. 2d., applicable to a dividend.—A dividend of 1l. per share was declared, equal to 4 per cent. per annum.—From a tabular statement of the prospects of the railway, made by their engineer, the following results are exhibited:—Total capital required, after deducting the proceeds to arise from the sale of surplus property, 480,000l.—viz., 454,033l. 11s. already expended, and 25,256l. 3s. 10d., the estimated cost of the new works now in progress; borrowed money, 250,000l.; subscribed capital, 230,000l.; net revenue, 36,201l., which, after deducting interest on borrowed money, 12,500l., leaves profit on subscribed capital 23,701l., being at the rate of nearly 10 per cent. This latter statement, it must be borne in mind, is only in anticipation, but which they think will be realised, when the line, now in course of formation, is completed to the heart of South Shields, and the additional revenue that will accrue from the traffic to be brought over six miles of this railway by the new line of railway communication between Newcastle and Darlington. The directors state that, "considering the variable nature and extent of the traffic on the line, at different periods of the year, and the difficulty of making a precise statement of the expenditure and receipts, at the expiration of each half-year, it would be much more satisfactory to make yearly, instead of half-yearly, accounts and dividends."—Thanks having been voted to the chairman and directors, the meeting adjourned.

SHEFFIELD AND ROTHERHAM RAILWAY.

The half-yearly general meeting of the proprietors of the above railway was held at the Sheffield station, on Monday, the 28th ult. The report showed that the number of passengers during the half-year had been, by the local trains, 166,182 (an increase of 19,549); by the North Midland trains, [illegible] (an increase of 4733)—making a total of 200,[illegible]; and being a total increase of 24,282 passengers over the preceding half year. The report also congratulates the proprietors on the favourable termination of the Chancery suit instituted against them by the Sheffield Canal Company, in which it was sought to compel the investment in the funds of a principal sum, sufficient to raise 100l. a-year, to be laid out in the repair of the Wicker. The suit was commenced three years ago, and was dismissed by Lord Langdale on the 4th of last Dec., with costs. It appeared by the account of income and expenditure, that the half-year's receipts for passengers, traffic, by interest, and from North Midland for engine power, &c., was 10,767l. 11s. 5d.; the expenditure had been [illegible] 14s. 6d.—leaving a balance of 5586l. 0s. 11d. Add to the latter the interest on calls for original shares, interest on new shares, together with the reserved fund, and a clear profit remained of 6052l. 10s. 9d., out of which the directors recommend a dividend on the original shares of 1l. per share, and on the new shares of 7s.; being equal to 5 per cent. on the paid-up capital, and leaving a surplus for reserved fund of 2326l. 10s. 9d.—The dividend was then declared payable on the 10th March, and the meeting adjourned.

DUBLIN AND DROGHEDA RAILWAY.

The half-yearly general meeting of the proprietors of this company was held at Dublin, on Thursday, the 3d inst., at which a report was read, and a statement of accounts submitted, which showed that the receipts for the half-year, including the balance from that previous, amounted to 15,371l., and the expenditure to 20,000l.—leaving a balance in hand of 14,162l. The report and statement of accounts, together with the engineer's report, were, after some discussion, adopted, and ordered to be printed and circulated. Messrs. T. Brodigan, J. Pasley, G. Hoyte, D. Scott, S. Horne, and J. Owen were appointed directors. Several shares were then forfeited, and the thanks of the meeting being voted to the principal officers, the meeting adjourned.

"GREAT WESTERN" STEAM-SHIP COMPANY.

The general meeting of the shareholders of the above company was held on Thursday week, at the company's offices, Princes-street. In the first place a dividend of 15s. per share was declared; and it was announced that the great iron steamer, Great Britain, would be ready to be launched in March, 1843. A lengthened discussion ensued respecting the alternate sailings of the Great Western from Bristol and Liverpool, and the financial condition of the company.—Mr. Mais strongly condemned the former proceeding; the Great Western was designed for the benefit of Bristol, and if any one would exceed his proposition, he would, rather than the ship should be "bastardised," be removed to that port, propose that the affairs of the company should be wound up, and closed altogether.—The explanation offered of the removal was, that, owing to the difference in the port charges, and other expenses, she could be cleared out at Liverpool for 200l. less than at Bristol. An examination of her freightage also showed that only a comparatively small portion was derived from and consigned to Bristol. The original prospectus, and the inducements therein held out to subscribers, were brought on the tapis, and contrasted with the present state of the company's affairs.—Mr. R. Bright, by whom the chair was taken, urged the shareholders to go on for another year, taking advantage of the markets of Bristol and Liverpool; by that time their new vessel would be completed, and they would then be better enabled to judge as to the course which it would be advisable to pursue.—A resolution in accordance with these views was, we believe, ultimately agreed to.

MINING CORRESPONDENCE.

ENGLISH MINES.

HOLMBUSH MINING COMPANY.

March 7.—I beg to inform you that the rise in the back of the 110 fathom level, on the north lode, is suspended, and the ground set on tribute at 7s. 6d. in the 1l.; in driving at this level, west from Forrest's winze, on the south part, the lode is six inches wide, with stones of ore; in this level, east of Dingle's winze, on the same lode, no improvement since my last. In the 100 fathom level west the lode is twelve inches wide, and worth 18l. per fathom; in this level east we are still driving towards the south part of the lode; the lode in the eastern stopes, in the back of this level, is eighteen inches wide, and worth 35l. per fathom; the lode in the western stopes, in the back of ditto, is improved, being at present two feet wide, and worth 20l. per fathom. The lode in the ninety fathom level west is fourteen inches wide, and worth 20l. per fathom. The lode in the eastern stopes, in the back of this level, is eighteen inches wide, and worth 24l. per fathom; the lode in the western stopes, in the back of ditto, is eighteen inches wide, and worth 35l. per fathom. In the eighty fathom level, east of Wall's shaft, we are still cross-cutting south; the lode in the stopes, in the back of this level, is sixteen inches wide, and worth 28l. per fathom. The seventy fathom level, east of Wall's shaft, on the Flapjack lode, is suspended, and the driving of this level west again resumed. The sixty-two fathom level east is without alteration. In the cross-cut from Hitchins's shaft, at this level, we have intersected the north lode, which is about nine inches wide, and producing stones of ore. The tribute pitches are still looking favourable.

F. Phillips.

TRELEIGH CONSOLS MINING COMPANY.

March 7.—We have communicated Garden's shaft to the twenty fathom level, and shall cut it down and complete it, with footway, &c., by the end of the month. The seventy west continues in disordered ground; the lode about two feet wide, but without any ore to value; this level east is also disordered about this point. The sixty west is about four feet wide, with ore throughout, but not rich—worth 7l. per fathom. The sixty east is improving, the lode being two and a half feet wide, and of a very promising nature. The fifty west continues ores, and worth 12l. per fathom. At Good Fortune the forty-four west is four feet wide, but nothing in it to value; this level east is one foot wide, and worth 6l. per fathom.

W. Sincock.

WEST WHEAL JEWEL MINING ASSOCIATION.

March 7.—The seventy east, on the south branch, the ground in this level is a great deal more favourable for driving, and the lode very kindly, containing good stones of ore. The fifty seven east, on this lode, is producing one ton of ore, and worth 7l. per fathom. The fifty-seven east, on Wheal Jewel lode, is improved, being now worth 12l. per fathom. The fifty-seven west, on this lode, is eighteen inches wide, and containing good stones of ore. The thirty west, on Tolcarne tin lode, is rather disordered at present by a limb of a cross-course.

Stephen Lean.

TREGOLLAN MINING COMPANY.

March 7.—I beg to inform you that the lode, in extending the forty fathom level east, is still of a very encouraging description, producing grey ore, and worth, on the average driving for the past week, 9l. per fathom; this lode is decidedly the most productive in the bottom of the level, which confirms our opinion that the result, in sinking, will be favourable; the cross-cut at this level is extended north from the main lode thirty seven fathoms; the ground is at present moderate for driving, but we have intersected nothing new in this end since my last report. The tribute pitches are without important alteration.

James Nennis.

UNITED HILLS MINING COMPANY.

March 5.—Williams's Engine-Shaft—Lode four feet wide, and producing some good stones of ore. Sixty Fathom Level, east of Williams's shaft—Lode four feet wide, eighteen inches good ore. Sixty Fathom Level, west of ditto—Lode six feet wide, and good ore. Rise, back of Fifty Fathom Level East—Lode two feet wide, good ore. Fifty Fathom Level, west of Diagonal Shaft—Lode about seven feet wide, and ore throughout. Fifty Fathom Level, east of James's Shaft—Lode three feet wide, one foot good ore. Diagonal Shaft—Sinking north of the lode in this shaft. Forty-six Fathom Level, east of Turton's—Lode three feet wide, one foot ore, of a fair quality. Forty-six Fathom Level, west of ditto—Lode four feet wide, and producing but little ore. Forty Fathom Level, east of Eastern Shaft—Lode two feet wide, with stones of ore. Winze sinking under ditto—Lode two and half feet wide, eighteen inches good ore. Cross-cut north of James's Shaft—No lode cut as yet. Thirty Fathom Level, east of Eastern Shaft—Lode one foot wide, of low quality. Twenty Fathom Level, east of ditto—Lode four feet wide, with a kindly appearance.

N. Langdon.

TRETOIL MINING COMPANY.

March 7.—The lode in the forty fathom level, east of engine-shaft, is nine inches wide, good tribute ground; one fathom driven last month very good tribute ground. The lode in the thirty fathom level, east of Williams's shaft, is ten inches wide, good tribute ground; five fathoms driven last month—two fathoms unproductive, and three fathoms tribute ground. Tregellas's lode, at the thirty fathom level, west of John's shaft, is one foot wide, producing some good ore; about four fathoms driven last month, and much the same. Tregellas's lode, at the thirty fathom level, east of John's shaft, is eight inches wide—tribute ground; six and a half fathoms driven last month, which was also tribute ground; the rise in the back of this level is holed; it has laid open tribute ground throughout. We have been cross-cutting the greater part of the month south from the tin lode (at the adit level, east of Marcom's shaft), to cut another part of it.

H. Williams. J. Morcom.

GREAT WHEAL CHARLOTTE MINING COMPANY.

March 5.—I beg to send you the report of this mine. We have again set the eighty-two fathom level to drive west from the rise in the back, but have not taken down the lode as yet, as the men have been working a week only. We have not holed the rise which is going up against the winze now sinking under the seventy-two fathom level, but expect to do so in a day or two; the lode in the stope, east from the shaft, is four feet wide, and worth 15l. per fathom; the stope east of Baddie's winze, in the bottom of this level, is not so good as last reported, and now worth 6l. per fathom; the lode in the stope, bottom of this level west, is poor, and we have stopped it this day. The stope west of Baton's winze is worth 15l. per fathom; the stope in the back of this level, east of Williams's winze, is worth 12l. per fathom. The winze under the sixty fathom level, that was driving west, is poor, and stopped this day; the lode in the winze, sinking under this level, is eight feet wide, and turns out four tons per fathom—worth 4l. per ton. The stope in the bottom of the sixty-two fathom level is worth 12l. per fathom; and the other, further west, in the bottom of this level, is worth 15l. per fathom.

S. Trevenhan.

TINCROFT MINING COMPANY.

March 7.—The new engine-shaft is 6 fms. 3ft. below the forty fathom level, about two inches wide, and worth about 10l. per [illegible] of shaft (thirteen feet). The forty fathom level east is disordered by another cross-course; at the winze sinking under this level the lode is about three feet wide, and ore throughout; the pitch, in the back of the same level, continues to look well. At the forty fathom level, west of shaft, in driving south-west of cross-course, we have cut Old Tincroft lode, which [illegible] Old Tincroft lode, is without alteration [illegible] At the 110 fathom level ditto, the winze sinking under the seventy [illegible] you will see by the setting report.

W. Paul. E. Bawden.

REDMOOR CONSOLIDATED MINING COMPANY.

March 7.—Our prospects at the sixty fathom level going south are still very good; the lode is much the same in size and quality, as last reported [illegible] the sixty fathom level.

F. R. Bowe.

STATISTICS OF AMERICAN MINES, MANUFACTURES, &c.

According to the recently-completed census of the United States, the particulars of which have just been published, the total value of products for the year ending September, 1841, amounted to 11,282,305,251 dollars, and are thus divided—

Agricultural	$794,437,671
Manufactures	393,622,515
Mines	53,702,000
Fisheries	11,996,101
The Forest	17,845,717
Miscellaneous	3,180,729

The following are the items which constitute the total of mines:—

Cast-iron	$22,000,240
Bar-iron	16,364,855
Lead	917,186
Granite and stone	3,695,884
Anthracite coal	6,486,147
Bituminous	6,396,757
Salt	1,396,785
Gold	529,605

The following are the occupations and trading capital of the United States:—

	No.	Capital.
Foreign and other commercial houses	4,200	$119,295,367
Retail stores of all kinds	57,565	250,301,799
Lumber trade	1,793	9,848,307
Butchers, packers, &c.	4,808	11,526,950
Iron furnaces and bloomeries	1,379	20,432,131
Lead smelters	120	1,346,756
Gold ditto	157	234,935
Cotton and other manufactures	8,930	65,067,433
Potteries	659	1,551,431
Sugar refineries	43	1,769,571
Paper mills	473	4,745,239
Daily papers, printers, binders, &c.	1,344	5,873,815
Rope walks	380	2,465,472
Flour & all other mills, for oil, grist, &c.	60,318	65,858,470

The number of persons employed in mining is 15,203; in agriculture, 3,717,756; in commerce, 117,575; in trade and manufactures, 791,745; in navigation—ocean and inland, 89,092; learned professions, 65,236—making a total of 4,796,607 persons.

STATISTICS OF THE IRON AND COAL TRADES.

Account of the Quantity of Iron and Coal brought down the Monmouthshire Canal and Sirhowy Tramroad to Newport and Pillgwenlly, for the year ending 31st December, 1841:—

	Iron.	Coal.
March Quarter—1841	48,110	152,099 tons.
June „ „	46,615	160,805 „
Sept. „ „	47,064	165,267 „
Dec. „ „	48,000	140,474 „
	189,889	618,195

Iron and Coal sent down the Glamorganshire Canal for the year ending 31st Dec.:—

Iron.	Tons.	Coal.	Tons.
Dowlais Iron Company	49,274	Thomas Powell and Co.	40,388
William Crawshay	40,034	Thomas Powell	31,812
Penydarren Iron Company	15,934	Lucy Thomas and Son	27,600
R. and A. Hill	15,464	Duncan and Co.	20,[illegible]
Aberdare Iron Company	13,385	George Insole	19,844
Taff Vale Iron Company	3,321	Walter Coffin and Co.	18,484
Richard Blakemore and Co.	3,944	Aberdare Coal Company	13,763
Brown, Lenox, and Co.	3,240	Morgan Thomas	10,[illegible]
Gadlys Iron Company	1,300	John Edmunds	7,461
		D. and D. Davis	7,008
		Evan Evans	4,146
	145,[illegible]		209,[illegible]

MINING NOTICES.

[Under this head we purpose collecting such paragraphs as may appear in the provincial and other Journals, having reference to discoveries and improvements in mining operations at home and abroad. It is hardly necessary to observe, that we must not be considered to admit the correctness of the information conveyed, which, in too many instances, requires cautious investigation—the sanguine expectations of parties in some instances, and the want of honesty in others, throwing a degree of responsibility on a Journal in giving publicity to reports, which we do not intend taking upon ourselves.]

Botallack Mine.—We quote from the *West Briton* of Saturday last the following corroboration of the recent valuable discovery at this mine, the particulars of which we published in our last:—"A correspondent, on the accuracy of whose statements we can rely, informs us, that a few days since one of the best, if not the very best, courses of copper ore ever known in this county, was discovered at Botallack Mine, in the parish of St. Just. It is that very rich kind of copper ore, called grey ore, and is about four feet solid. Several fathoms have already been opened on it, worth at least 300l. per fathom. A large party of the adventurers and their friends attended at the mine on Tuesday last to inspect the rich ore, many tons of which are already at the surface. The discovery has produced quite a sensation of general delight in the neighbourhood of the mine.

Herm Copper Mines.—Since the report of these mines by Mr. Henwood, her Majesty's mine surveyor for the Duchy of Cornwall, in the early part of last year, they have been inspected by Mr. F. M. Thle, from the Royal Mines and Reduction Works of Freiberg, in Saxony, who fully concurs in the opinion expressed by the former gentleman, that the mines are of high interest, and offer very encouraging prospects of success. It is satisfactory to find that the difficulties which produced a temporary suspension of the works have been removed, and that operations on an increased scale are about speedily to be resumed, by the erection of the necessary machinery, &c. The accounts from the Sark silver mines, we understand, also continue to be of a very satisfactory nature, another cargo of ninety tons of ore being now ready for shipment.—*Guernsey Star*.

MINE ACCIDENTS.

Wheal Owles.—Two young men (Nicholas Grenfell and Henry Chappel) met with their deaths from suffocation in Wheal Owles Mine, in St. Just, in Penwith, on Thursday week, in consequence of having gone down to their place of working in the mine, where a hole had been previously blasted, before the foul air proceeding therefrom had escaped.

Explosion of Fire-Damp at Castleton.—On Monday week an explosion of fire-damp took place in Mr. Brettargh's coal-pit, situated at Sparth Bottoms, near Rochdale, by which three men lost their lives. Their names are N. Hall, S. Preston, and J. Greenhalgh (who lost his life in attempting to save the others). At the inquest it appeared that the men had that morning been cautioned not to go to the part of the works where the explosion took place. Several other miners had a very narrow escape, and, considering the nature of the mine, which is said to have frequent escapes of bad air, the loss of life may perhaps be considered as less than might have been expected.

COMPRESSED AIR APPARATUS.

Mention was made some time since [see *Journals*, January 29 and February 12] of the compressed air machinery used by Messrs. Triger and Las Cases in boring for coal near Angers, to keep out the water from the shafts of their pits. The workmen operated in a kind of chamber, filled with compressed air; and as some of the circumstances connected with it were curious, we think it worth while to return to the subject. M. Triger was one day in the machine with the men, and M. Las Cases was outside watching the operations. The machine had been working three quarters of an hour, and the mercury of the manometer was hardly at forty inches, when on a sudden M. Triger heard a detonation like that of a four-pounder, was seized at the same moment with extreme cold, and was left in utter darkness amid a thick fog. It appeared that a glass bull's-eye, of six inches diameter, had been broken by the air, and that several of the fragments had been driven with great violence close by M. Las Cases, after piercing through a tarpaulin placed over the shaft. Some pieces of the glass were picked up at a distance of 100 feet; and a piece of M. Triger's hat was found at nearly the same distance. After the works had been carried down to the coal, M. Triger gave less strength to the compression of the air, and kept it at such a point as just to keep back the water; often, in fact, the compression was not enough to produce this effect. One day in particular, this difficulty was experienced more than usual, when a workman by accident broke with his pickaxe into the escape pipe for the water. The water immediately burst out with great force from the end of the pipe, and made a jet of 130 feet in height. It was found that the air was mixed with the water, and that when introduced into the pipe it divided the air into two columns, so that it became evident, that although the force of the air at that degree of compression was not sufficient to raise a column of pure water, it was more than enough for one of air and water mixed. This discovery allowed of the compression, under which the workmen operated, being diminished; and from that time it was found sufficient to use a compression of two atmospheres, although the column of water was more than seventy five feet high.—*Trans. Academy of Sciences, Paris.*

Improvements in Locomotive-Engines.—We perceive, by the report presented at the meeting of the York and North Midland Railway Company, that in future a considerable saving in the important article of coke may be fairly calculated upon, from certain mechanical improvements having been applied to all the locomotive-engines belonging to the company, by which a material reduction is effected in the consumption of fuel. We should be glad if some correspondent would furnish us with the particulars of the improvements alluded to.

MONEY MARKET AND CITY NEWS.

CURRENT PRICES OF ENGLISH AND FOREIGN FUNDS.

Consols Money, 89½ 9	Dutch, 2½ per Cent., 51½ 2½
Ditto Account, 89 ¼	Ditto, 5 per Cent., 100½ ¼
New 3½ per Cents., 98½	Portuguese, 5 per Cent., 35 ¼
Exchequer Bills, 29 31 pm.	Ditto, 3 per Cent., 19¼ 20
Belgian Bonds, 5 per Cent., 103 4	Spanish, Actives, 5 per Cent., 24¼ ½
Brazil, 5 per Cent., 66 7	Chili, 6 per Cent., 74 5
Danish, 3 per Cent., 81½ 2½	Colombian, 6 per Cent., 24½ ¾
Russian, 5 per Cent., 112½ 113½	Mexican, 5 per Cent., 34¼ ¾

REMARKS ON THE OPERATIONS OF THE WEEK.

SATURDAY, March 5.—The improvement in the quotations of English funds was not maintained; Consols declined to 89¼ ½ for money, and 89¼ ½ for time; Exchequer Bills, however, continue to advance, and now, from an increased demand, their premium is marked 31s. 33s.; and India Bonds ,s. 10s. pm.—The general business in foreign stocks was transacted at rather firmer prices; Spanish Actives closed at 24¼ ⅝; there was some fluctuation in Mexican Stock during the day—the highest price being 35¼, and the closing price 35¼ ½; and Brazilian, 66 7.—In the share market prices of all railway stock were well supported, without, however, any particular demand.—Imperial Brazilian Mining Association, 7½; Real del Monte (unregistered), 3¼.—Ionian Bank, 23; London and Westminster, 23¼ ½; and Union of Australia, 29¾ ¼.

Another failure of a house in the Australian trade was announced to-day, and a firm in the home trade, in a moderate business, was at the same time under the necessity of suspending payments.

MONDAY.—The funds were quiet, with very little business, and the chief feature to remark in operation is the gradual and increasing demand for Exchequer Bills, the premium for which, in consequence of the call for them in the market, is quoted 32s. to 34s.; Consols for Money left off 89¼ ½, and for Account 89¼ ½; India Bonds are quoted 8s. 10s. pm.—In the foreign market the transactions were few, and prices underwent no material alteration.—Dealings were not quite so active in shares, but, though the market was flat, prices in general were not much affected; Bristol and Exeter, 58½; Eastern Counties, 9¼; Great Western, 89½ ex div.; London and Birmingham, 175 6; South Western, 58½; Croydon Trunk, 12¼; Northern and Eastern, [illegible]; and York and North Midland, new, 31.

TUESDAY.—The extremely unfavourable news received from India could not otherwise than have a depreciating tendency on our funds, in which, indeed, there was but little doing, and even that was at lower figures—the quotations at one period were so low as 89¼ for the Account—but the market subsequently rallied, and closed with a better appearance. Exchequer Bills did not maintain their rise, being last marked 31s. 33s. pm.; and India Bonds, 8s. 9s. pm.—The business in the foreign house was also affected—the principal dealings were in Spanish and Mexican, and the quotations of both were lower.—Transactions in the share market were rather on a limited scale, as, of late; Great Western dropped 1l., and South Western and London and Birmingham were also done at lower prices in mining shares, Bolanos scrip were done at 6¼ 6; and St. John Rey at 1¼—In banks, London and Westminster, 23 2¼; Provincial Bank of Ireland, 41¼ ½; and Canada, 29.

There were various rumours of failures current in the city, but the only one which can be ascertained with any certainty was that of Messrs. Forman and Hadlow, colonial bankers, a house of some eminence in that line.

The foreign exchanges were not much altered to-day, but there was a lower tendency in those upon Amsterdam and Paris, while on Hamburgh the rate was quoted rather higher. Amsterdam short, 12 3; Rotterdam, 12 3; Antwerp, 12 4¼; Hamburgh, 13 11¼; and Paris short, 25 22½ 27½.

The premium on gold at Paris is 3 per mille, which, at the English Mint price of 3l. 17s. 10½d. per ounce for standard gold, gives an exchange of 25 27½, and the exchange at London at short being 25 35, it follows that gold is 0·79 per cent. dearer in London than in Paris.

By advices from Hamburgh the price of gold is 432 per mark, which, at the English Mint price of 3l. 17s. 10½d. per ounce for standard gold, gives an exchange of 13 8¼, and the exchange at Hamburgh on London at short being 13 10, it follows that gold is 0·68 per cent. dearer in London than in Hamburgh.

The course of exchange at New York on London is 108¼ per cent., and the par of exchange between England and America being 109 23-40 per cent., it follows that the exchange is 1·25 per cent. against England. But the quoted exchange at New York being for bills at sixty days' sight, the interest must be deducted from the above difference.

WEDNESDAY.—The funds have been less affected by the disastrous accounts from Affghanistan than was at first expected, for, though the news is pretty generally considered correct, there is yet a hope that many of the statements will ultimately prove greatly exaggerated; Consols for Money closed 89 ¼. Exchequer Bills were quoted at the lower premium of 30s. 32s.—The foreign market was altogether neglected, and quotations generally on the decline.—There was very little activity in the share market, but prices were tolerably supported. Bolanos Mining Company (scrip), 6¼ 6.—London Joint-Stock Bank, 12¼; Canada, 29.

THURSDAY.—The English funds were rather more active than yesterday, but no alteration of consequence occurred in the quotations. The official dispatches were received this morning by Government, which fully confirm, we regret to state, the melancholy news respecting the destruction of the army in Affghanistan—indeed, the accounts that have already appeared are rather under than overrated.—Consols for Money closed 89¼, and for Account 89¼; Exchequer Bills, 30s. 32s. pm.—The foreign securities were better, although very little business was transacted.—No alteration took place in the share market.—Australasian Bank, 33¼; London and Westminster, 23¼; Union of Australasia, 29¼.

FRIDAY.—The English funds were almost stationary throughout the day, speculative transactions being suspended until the financial plans of Government have transpired. Cash is tolerably easy in the market at 3 per cent. Exchequer Bills are 1s. lower, being last quoted 29s. 31s. pm.—Some fluctuation took place in Spanish Stock, which left off 24¼ ⅝; Portuguese, 35¼ ½; Colombian, 24½ ¾; and Brazilian, 66 7.—The only alteration in shares is a decline of 1l. per share on Birmingham, which are now quoted 173 5.—Australasia Bank, 33; London Joint-Stock, 12¼; National Provincial of England, 33¼; and National of Ireland, 15¼ 16.

In the foreign exchanges the rate upon Amsterdam was quoted a shade lower, and the rate upon Hamburgh a trifle higher; Amsterdam, 12 2¼ 3; Paris, 25 30 35.

[From our own correspondents.]

PARIS, March 10.—5 per Cents., 117f. 10c.; 4 per Cents., 101f.; 3 per Cents., 80f. 45c.; Loan, 1841, 80f. 75c.; Bank Actions, 3270f.; Rente de Naples, 106f. 40c.; Romans, 105; Spanish Actives, 25¼; ditto Passives, 5¼; Belgian 5 per Cents., 1831, 105¼; Belgian Bank, 800f.; Haytian Loan, 600f.—St. Germain Railway, 800f.; Versailles, R. B., 282f. 50c.; L. B., 120f. 50c.; Rouen, 537f. 50c.; Orleans, 537f. 50c.; Bordeaux to la Teste, 320f.; Strasburgh to Bâle, 240f.—Exchange on London, one month, money, 25f. 47½c.; three months, money, 25f. 30c.

LATEST PRICES OF IRISH STOCKS.—3 per Cent. Consols, 89¼—3½ Stock, 98—Ditto New, 1840, 98¼—3½ per Cent. Debentures, 97¼—Bank Stock, 176½—Kingstown Railway, 62—Drogheda, 7—National Insurance Company, 70—City of Dublin Steam Company, 117¼—ditto Stock, 1800, 24¼—British and Irish Steam Company, 31¼—Hibernian Bank, 29¼—Royal Bank, 15¼—Mining Company of Ireland, 14¼—Wicklow Copper Mines, 12¼.

LEEDS, Thursday.—The market for shares, during the past week, has undergone more changes than usual, but the tendency to dullness has been rather apparent. The unsettled state of men's minds, who are engaged in mercantile matters, respecting the measures of Sir Robert Peel, now just on the eve of being brought to light, after so long a period of gestation, keeps every thing from assuming a steady and even aspect, and, with our immediate prospects of business for the [illegible]

[illegible]

HULL, Thursday.—We have no material alteration to record, there is not much [illegible]

[illegible]

NEWCASTLE, Thursday.—The meeting of the Brandling Junction Railway [illegible]

[illegible]

BRISTOL, Friday.—Business still continues dull here, and stock offered more freely to-day than for some time past, with a downward tendency as to prices.—Great Western Railway, 88¼l. to 89¼l.; halves, 61¼l. to 61¾l.; fifths, 9¼l. to 10l.; Bristol and Exeter, 37l. to 38¼l.; Bristol and Gloucester, 11. to 2l.; Birmingham and Gloucester, 36l. to 38l.; Birmingham and Derby, 54l. to 56l.; Cheltenham Union, 16¼l. to 17¼l.; London and Brighton, 35¼l. to 36l.; Taff Vale, 6cl.—Bristol Gas Company, 32l.; Clifton, 22l. to 23l.

EDINBURGH, Wednesday.—Edinburgh and Glasgow Railway, 42l.; Dalkeith and Edinburgh, 36l.; Glasgow and Greenock, 22¼l.; Glasgow and Garnkirk, 42l.; Glasgow and Ayrshire, 36¼l.; Wishaw and Coltness, 40l.; Dundee and Arbroath, 22l.; Arbroath and Forfar, 22l.

GLASGOW, Wednesday.—Ballochney Railway, 87l.; Dundee and Arbroath, 22¼l.; Edinburgh and Glasgow, 43l.; Garnkirk and Glasgow, 42l.; Glasgow and Greenock, 22¼l.; Glasgow, Paisley, Kilmarnock, and Ayr, 36l.; Monkland and Kirkintilloch, 56l.; Slamannan, 25l.; Wishaw and Coltness, 40l.

LIVERPOOL, Thursday.—Grand Junction Railway, 182l.; Lancaster and Preston, 50l.; Liverpool and Manchester, 191l.; North Union, 72¼l.; Paris and Rouen, 14¼l.; York and North Midland, 91l.—Albion Bank, 26¼l.; Borough, 13¼l.; Bank of Liverpool, 17¼l.; Liverpool Banking Company, 8l.; Manchester and Liverpool District, 10¼l.; North and South Wales, 4¼l.; Royal, 47¼l.; South Lancashire, 5¼l.; Union, 10¼l.

MANCHESTER, Thursday.—Manchester and Birmingham Railway, 29¼l. 29l.; Manchester, Bolton, and Bury, 53l.; Manchester and Leeds, 75¼l.—Bank of Manchester, 4l.; Stockport, 24l.; Manchester and Liverpool District, 10¼l.; Manchester and Salford, 10l.; South Lancashire, 5¼l.; Union of Manchester, 6¼l.—Manchester Fire and Life Assurance Company, 9¼l.—Union Plate Glass Company, 6l.

BIRMINGHAM, Thursday.—London and Birmingham Railway, 174l. to 175l.; London and Brighton, 38¼l.; London and South-Western, 58¼l.; Great Western, 80l. to 89¼l.; Birmingham and Derby, 54l.; Birmingham and Gloucester, 53l. to 54l.—Birmingham Banking Company, 19l.; Birmingham and Midland, 32¼l.; Birmingham and Staffordshire, 78¼l.

SALE OF COPPER ORES IN CORNWALL.

Sampled Feb. 23, and Sold at Andrews's Hotel, Redruth, March 10.

Mines.	Tons.	Price.	Purchasers.	Mines.	Tons.	Price.	Purchasers.
P. Consols	125	£7 0 6	Vivians.	St. Andrew	21½	1 5 0	Vivians.
ditto	124*	7 1 6	—	ditto	21½	1 5 0	Freemans.
ditto	114	6 [illegible] 6	Nevill & Co.	ditto	21½	1 5 0	P. Grenfells.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
ditto	27½	6 3 0	—	Lessawe	21	11 12 0	P. Grenfells.
ditto	27½	6 3 0	Nevill & Co.	ditto	15	2 18 0	—
Treloil	92	3 16 0	Freemans.	Owen Vean	4½	4 1 0	Crown Co.
ditto	74	5 3 0	—	ditto	4½	4 1 0	Williams.
ditto	11	7 10 0	Nevill & Co				

TOTAL PRODUCE.

Par Consols	456	£ 3083 0 6	Wh. Friendship	139	£ 633 11 0
Levant	252	1791 15 0	Providence Mines	91	429 19 6
Fowey Consols	206	1132 1 6	Botallack	78	9 3 6 6
Treleigh Consols	205	883 14 6	Wheal Speed	69	221 10 0
Wh. Trewavas	201	1141 3 0	Wh. Busy	51	164 17 6
Treloil	177	619 3 0	Relistian	42	312 17 0
Wh. St. Andrew	174	637 15 6	Lessawe	36	267 2 0
Wh. Buller	171	1013 9 6	Owen Vean	9	36 2 0

Average standard, 116l. 9s.—Average produce, 7¼.—Average price, 5l. 19s. 8d.—Quantity of ore, 2563 tons.—Quantity of fine copper, 200 tons 19 cwt.—Amount of money, 15,179l. 19s. 6d.—Average standard of last sale, 115l. 19s.—Average produce, 7¼.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal Company	101	£677 3 0
Vivian and Sons	682½	4165 4 10
Freeman and Co.	371½	1915 16 1
Grenfell and Sons	283½	1330 0 4
Crown Copper Co.	4½	18 4 6
Sims, Williams, Nevills, Druce, and Co.	574½	3193 16 6
Williams, Foster, and Co.	536	3650 9 3
Total	2563	£15,179 19 6

Copper ores for sale on Thursday next, at Pearce's Hotel, Truro.—Mines and Parcels.—Tresavean, 667; Poldice, 410; Wheal Jewel, 377; Fowey Consols, 372, Holmbush, 267; Wheal Harmony and Cardrew, 156; Wheal Maiden, 60; Brewer, 50; Tregolian, 26; Pencromnow, 14; Wheal Leisure, 13; Wheal Damsel, 10; Truro Consols, 3.—Total, 2516 tons.

Copper ores for sale on Thursday week, at Pearce's Hotel, Truro.—Mines and Parcels.—Consols Mines, 1000; United Mines, 400; Hallenbeagle, 347; Trethellan, 281; Tresavean, 200; Fowey Consols, 377; Wheal Ellen, 137; Wheal Trewavas, 131; Wheal Unity Wood and Union, 100; West Wheal Jewel, 90; Great Wheal Charlotte, 77; Tregothnan Consols, 79.—Total, 3329 tons.

* Half of 124 tons is reserved.

SALE OF COPPER ORES AT SWANSEA.

Sampled Feb. 16, and sold on the 9th March.

Mines	Tons	Produce	Stand.	Price.	Mines	Tons	Produce	Stand.	Price.
Cobre	114	13½	96	16 11 0	Santiago	69	16	96	15 2 6
ditto	100	14	94½	16 16 0	ditto	77	16	90	13 2 6
ditto	95	13½	97½	16 15 0	ditto	91	20½	95	15 7 6
ditto	64	13	96½	16 16 0	ditto	94	21½	95	15 7 6
ditto	100	13	96½	16 11 0	ditto	45	24½	92½	20 15 0
ditto	75	13	96½	16 11 0	Chili	50	40½	95	30 10 6
ditto	49	12½	96½	10 6 6	ditto	30	23½	95½	19 16 6
ditto	105	12½	96½	10 3 0	Llwydd	40	22	112	7 3 6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TOTAL PRODUCE.

[illegible]

Total tons, 1679.—Total amount, £22,[illegible]

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
English Copper Company	[illegible]	[illegible]
P. Grenfell and Sons	[illegible]	[illegible]
Sims, Willyams, Nevills, Druce, and Co.	[illegible]	[illegible]
Vivian and Sons	[illegible]	[illegible]
Williams, Foster, and Co.	[illegible]	[illegible]
Mines Royal Company	[illegible]	[illegible]
	1679	£22,[illegible]

Copper ores for sale March [illegible]

SALES OF BLACK TIN,

By Ticket, on the 8th of March, at Penzance.

[illegible]

Total tons, 41.—Amount, £[illegible]

METEOROLOGICAL JOURNAL, 1842

[illegible]

Prevailing wind S.W.

[illegible]

CHARLES HENRY ADAMS.

LATEST CURRENT PRICES OF METALS.

LONDON, MARCH 11, 1842.

[illegible]

REMARKS.—There is scarcely a remark to make on the metal markets, further than a general stagnation of business. In spelter about fifty tons, on the spot, have been sold at 17l., the market being firm, from an advance of 1¼ rupees per 74 lbs. in Calcutta, and scarcity of stock there and at the other settlements.

EXPORTATION OF GOLD AND SILVER.—By the official return published by the Customs, the export of the precious metals from the port of London to foreign and colonial ports, for the week ending Thursday last, was as under:—

Silver coin to Rotterdam	151,000 ounces.
„ Hamburgh	20,000 „
„ Mauritius	21,797 „
Silver bars to Rotterdam	100,000 „
„ Hamburgh	29,390 „

The quantity of silver coin and bullion shipped at Dover in the month of February amounted to 796,250 oz.; and of gold coin, 550 oz.

COAL MARKET, LONDON.

MONDAY.—Price of coals per ton at the close of the market:—Carr's Hartley 16—Hebburn Main 17 6—Holywell 19—Nelson's West Hartley 17—Old Tanfield 15—Tanfield Moor 20—Tanfield Moor Bute's 15 6—West Hartley 17 6—Wall's End Bell and Brown 19—Hotspur 17 6—Ramsay 15—South Killingworth 14 6—South Wellington 18—Braddyll's Hetton 20 9—Haswell 20 9—Hetton 20 9—Lambton 20—Russell's Hetton 20 6—Stewart's 21 3—Whitwell 19 6—Caseop 20 9—Hartlepool 20 9—Brown's Denery 19 3—Cowndon Tees 19 6—Evenwood 17 6—Richardson's Tees 18—Blyth 15 3—Cowpen 17 6—Derwentwater Hartley 17 6—Hartley 17—Howard's Netherton Main 17.—Ships arrived, 212.

WEDNESDAY.—Bell Robson's Hartley 16—Holywell Main 18—Nelson's West Hartley 17—Old Tanfield 15—Ord's Redheugh 15 6—West Hartley 17—Wylam 17 6—Wall's End Bewicke and Co. 19 3—Gosforth 19 3—Killingworth 18 6—Newmarch 17—Northumberland 17—Braddyll's Hetton 20 9—Haswell 20 9—Lambton 20 9—Russell's Hetton 20 6—Stewart's 21—Hough Hall 21—Seymour's Hartlepool 18—Barrington Tees 17—Bowburn 18—Brown's Denery 18—Gordon 17—St. Helen's Tees 18 6—Tees 19 9—Howard's Netherton Main 17—Newton Main 14 6—Ships arrived, 49.

FRIDAY.—Bell Robson's Hartley 15 6—Buddle's West Hartley 17—Lowe's Main 14 6—Nelson's West Hartley 17 3—New Tanfield 14—Old Tanfield 15—West Wylam 17 6—West Hartley 17—Wylam 17 6—Wall's End Bewicke and Co. 19—Clennell 17—Hedley 18 6—Killingworth 18 6—Wharncliffe 19—East Hetton 19 6—Hetton 21—Lambton 20 6—North Hetton Lyon's 17 6—Stewart's 21—Evenwood 16 9—South Durham 19 6—Blyth 14 9—Cowpen 16 6.—One ship arrived.

PRICES OF MINING SHARES.

Shares.	BRITISH MINES.	Paid.	Price	Shares.	BRITISH MINES.	Paid.	Price
500	Anglesey	5	—	6,000	Tin Croft	6½	3¼
4,000	Bissoe Bridge	5	¼	4,300	Treloil	1½	3½
20,000	British Iron	70	65dis	1,000	Trevidgia	5	—
8,000	Blaenavon	40	20	120	Treviskey and Barrier	—	140
120	Brewer	—	90	96	Tresavean	—	1000
179	Budnick	—	90	120	Trethellan	—	230
1,000	Carn Brea	—	110	4,000	United Hills	5	6½
2,000	Cornubian Lead Co.	2	4½	6,000	Wicklow Copper	5	13
4,000	Cornwall Great United	10½	1	3,945	West Wheal Jewel	10	3½
	Cuddra	10	—	1,000	Wheal Julia	—	61
612	Cook's Kitchen	—	50	128	Wheal Kitty	—	80
112	Charlestown	—	375		**FOREIGN MINES.**		
8,000	Dartmoor Consols	5	1½	5,000	Alten Mining Company	13½	6
10,000	DurhamCountyCoalCo.	37	9	10,000	Anglo Mexican Co.	100	4
2,000	Dancecombe	—	2	2,374	Do. Subscription	75	1
6,000	De Dunstanville	—	—	2,000	Bolanos	150	4
1,000	Duffield	20	—		Ditto Scrip	16	6½ 6
240	Diamond	3½	10	10,000	Brazilian Imperial	21	7
1,200	East Mulberry Hills	3½	1	10,000	Bolivar	20	1
128	East Pool	—	260	10,000	Ditto Scrip	10	3
4,000	East Treloil	1	½	10,000	Cata Branca } Brazilian	6½	7½
3,200	Great Wh. Prosper	7½	6½	10,000	Concelçao } Co.	4	—
14,000	Great Wh. Charlotte	3	1¼	12,000	Cobre CopperCompany	40	35½
10,000	Hibernian	12½	3½	6,500	Colombian Co. regis.	55	2
1,000	Holmbush	14	50	10,000	Copiapo Mining Co.	13½	9
2,000	Isle of Sark (Guernsey)	11	13	20,000	General Mining Assn.	20	2
20,000	Mining Co. of Ireland	7	14½	3,351	Mexican Company	38½	2
6,000	Polbreen	4	1	12,000	Mocoubas and Cocaes	25	4½
3,000	Polberou Consols	10	½	14,382	{ Real del Monte, regis.	63½	3½
2,000	Relistian	—	½		{ Do. unregistered	—	3¼
5,000	Redmoor Consolidated	5	1½		Ditto Loan Notes	150	16
10,000	Rhymney Iron	30	15	7,000	Royal Santiago	10	20
100	Rosewall Hill	180	160	11,000	St. John d'el Rey	14½	2
900	South Towan	10	1	20,000	United Mexican	40	1½
4,000	Tregolian	4½	½		BlackScrip,addl.capital	5	1½
4,000	Treleigh Consols	4½	3½		Red New Scrip	5	3½
4,300	Tamar Consols	5	2				

RAILWAY SHARE LIST AND TRAFFIC RETURNS.

Line.	Entire Lgth.	Now Open.	Present actual cost.	Pd. on Share.	Val. of Share.	Last week's Returns.
Arbroath and Forfar Railway	15	15	£ 131,645	25	22	£147 11 1
Birmingham & Derby Junc.	49	38½	950,944	100	56 5	1031 5 9
Birmingham and Gloucester	51½	51	1,013,721	100	57	1483 12 5
Brandling Junction	25	25	407,184	45	—	734 16 6
Chester and Birkenhead	14½	14½	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* Including Northern and Eastern Railway toll. † Rent and toll to Eastern Counties [illegible] ‡ The Liverpool and Manchester toll is included.

THE LONDON GAZETTE—BANKRUPTS.

TUESDAY.—[illegible]

FRIDAY.—[illegible]

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